FOUNDRY

EST. 1902 TRADE JOURNAL

WITH WHICH IS INCORPORATED THE IRON AND STEEL TRADES JOURNAL

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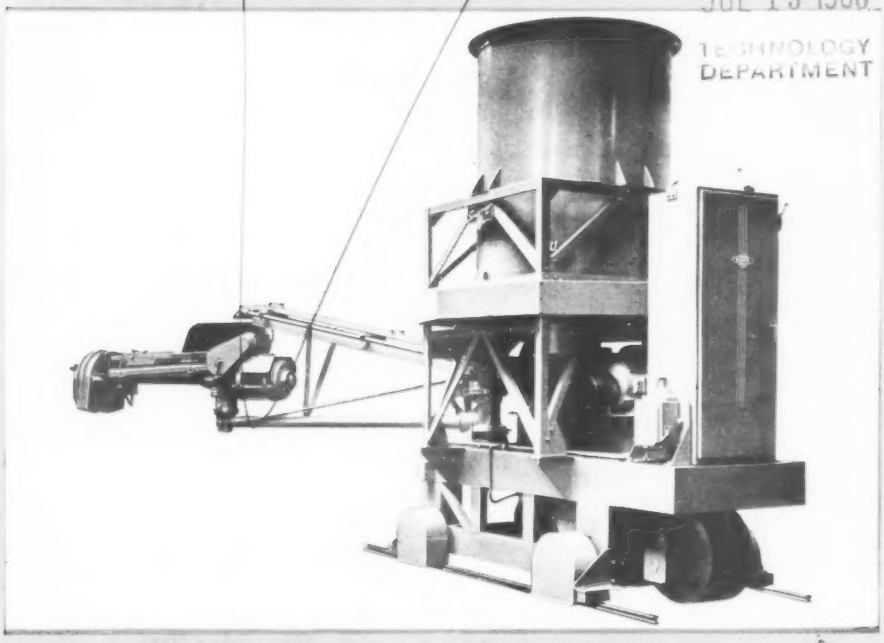
TECHNOLOGY DEPARTMENT



Mobile Type Sandslinger as supplied to
The Staveley Iron & Chemical Co., Ltd.

Sandslinger

FOUNDRY PLANT & MACHINERY LTD
EGLINTON WORKS, COOK STREET
GLASGOW, C.5.

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I'm pleased I saw

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SMR 1527
A powder resin for
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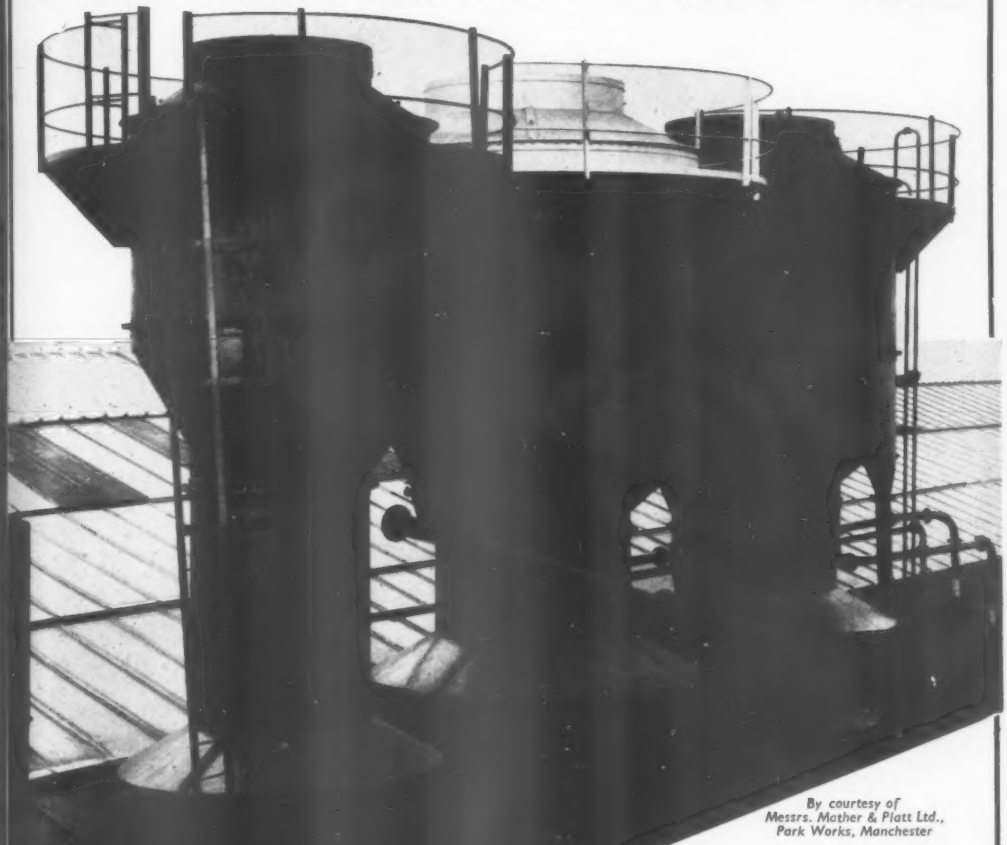
JACKMAN MELTING EQUIPMENT

CUPOLAS · SPARK ARRESTERS · CHARGERS · LADLES



By courtesy of Messrs. Mather & Platt Ltd., Park Works, Manchester

We show a recent installation of three wet spark and grit arresters supplied to existing cupolas. The middle cupola was blowing when the photograph was taken

ALL SIZES OF HIGHLY EFFICIENT WET AND DRY TYPE SPARK AND GRIT ARRESTERS CAN BE SUPPLIED FOR NEW AND EXISTING INSTALLATIONS

We shall be glad to arrange for our Representative to visit your site and make recommendations

J. W. JACKMAN AND COMPANY LIMITED

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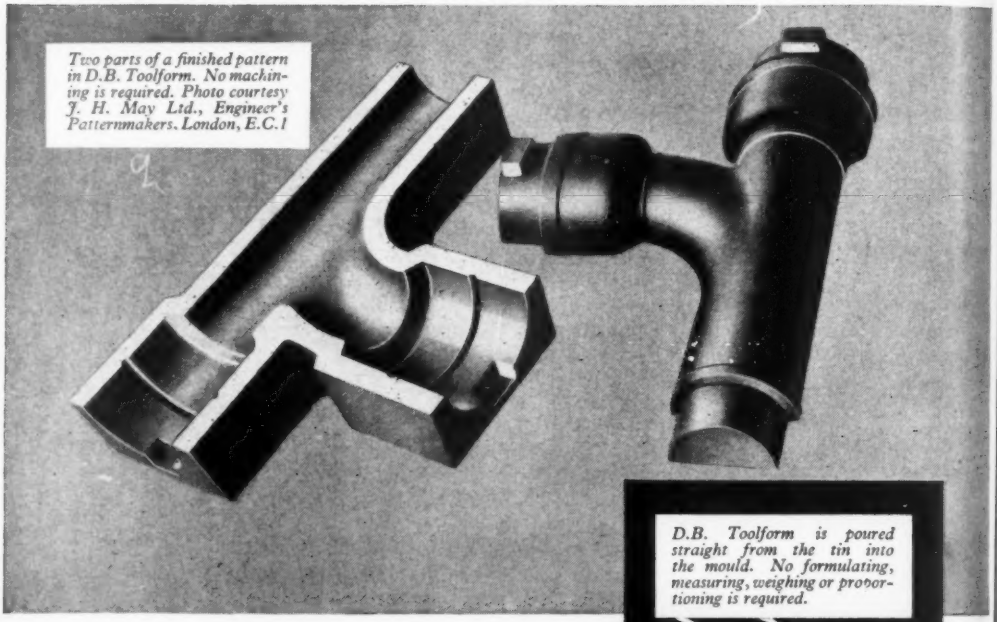
A

You'll get BETTER PATTERNS



Two parts of a finished pattern in D.B. Toolform. No machining is required. Photo courtesy J. H. May Ltd., Engineer's Patternmakers, London, E.C.1

D.B. Toolform is poured straight from the tin into the mould. No formulating, measuring, weighing or proportioning is required.

WITH

D.B. TOOLFORM

THE TOUGH EPOXIDE PLASTICS

D.B. Toolform simplifies foundry pattern-making and results in a superior job at an economical cost.

HERE ARE SOME OF THE ADVANTAGES

Better abrasion resistance than aluminium • Does not sweat • Patterns can be modified easily at any time • Damage can be quickly repaired • Large patterns can be of hollow construction • Stable when cured • Unaffected by most liquids • Can be stored in the open • No double shrinkage allowance required • Extremely low cost compared with metal patterns.

double bond db TOOLFORM

Please send me literature giving further details of the applications and advantages of D.B. Toolform.

NAME ..... COMPANY .....

ADDRESS .....

Post to **THE KENILWORTH MANUFACTURING CO. LTD.**

WEST DRAYTON, MIDDLESEX. · WEST DRAYTON 3731

FTJ1

Sand Testing Equipment

Routine checking of moulding and core sand properties is essential and guarantees improved surface finish of castings, fewer rejects and economical use of sands. **The production of quality castings begins with sand testing.**

Our illustration shows +GF+ Sand Testing Equipment in use in the laboratories of the Ford Motor Co. Ltd., Dagenham.

+GF+

Easy handling - reliable test results - pleasing appearance

Agents for U.K. and Eire:

Foundry Suppliers, Ltd,
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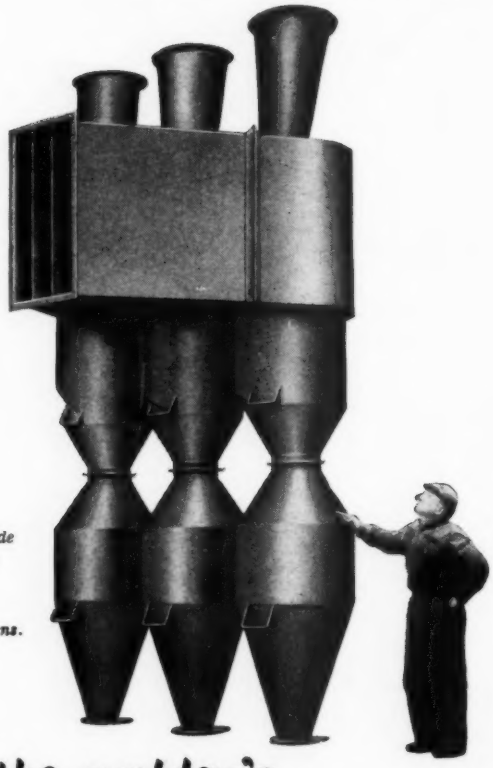
London, S.W.1.

Telephone TRAfalgar 1141

George Fischer Limited, Schaffhausen, Switzerland

Telephone: (053) 56031/57031

Telegrams: Geofischer



Tornado-Cyclogal centrifugal settlers provide extremely low resistance to airflow and high collection efficiency of particles down to 5 microns.

when the problem's

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For over 60 years, Industry has turned to 'Tornado' to settle dust and fume extraction problems. Keith Blackman were the first in the country to use air extraction as the basis for dust and fume exhaust systems. With this record and this experience they are the natural choice for your problem. You too, should 'turn to Tornado' for advice on *complete plants* or individual equipment. There is a qualified representative in every industrial area.

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Tornado-Fischer patented, self-cleaning filters

Type 270/540 pocket filters

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Solivore patented wet scrubbers

Hydro precipitator wet washers

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Cyclogal high efficiency, low resistance cyclones

Cyclogalax 'straight through' cyclones

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PD-KB tubular collectors

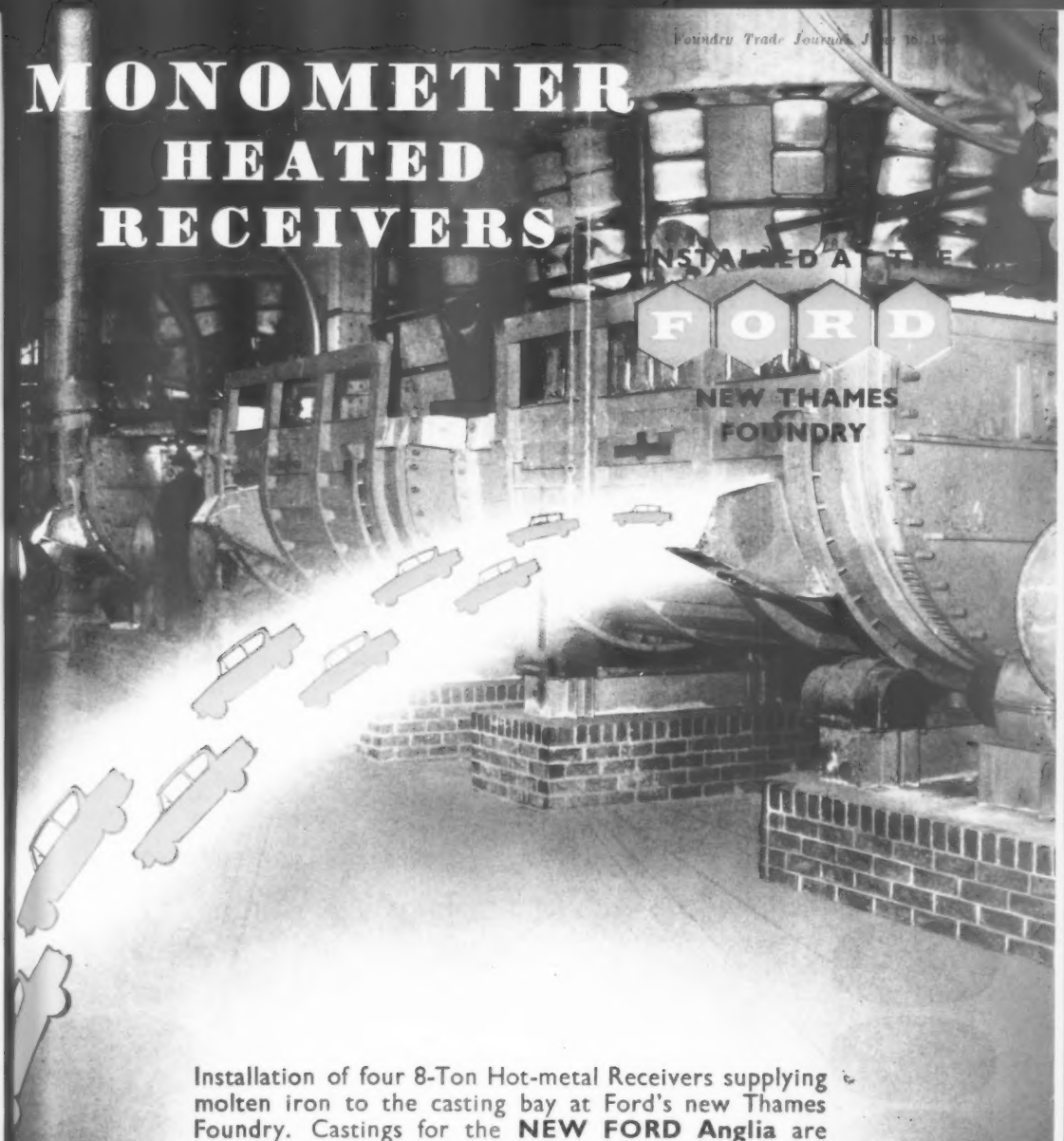
ELECTROSTATIC PRECIPITATION

PD-KB electrostatic precipitators

FANS

Paddle type industrial fans

MONOMETER HEATED RECEIVERS



Installation of four 8-Ton Hot-metal Receivers supplying molten iron to the casting bay at Ford's new Thames Foundry. Castings for the **NEW FORD Anglia** are produced from metal at temperatures as tapped from the cupolas.

Receivers may be fired by oil or gas and are available in a wide range of capacities, with motorised or manually-operated tilting.

MONOMETER MANUFACTURING CO. LTD.,
SAVOY HOUSE, 115-116 STRAND, W.C.2. Tel: TEMPLE BAR 9025

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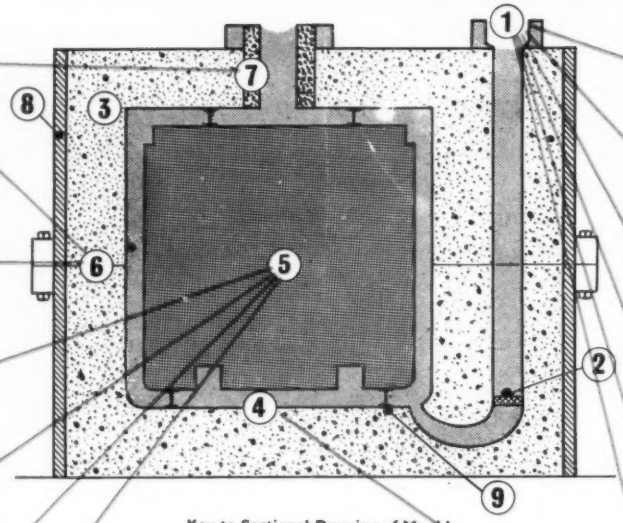

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Key to Sectional Drawing of Mould

		Send for booklet No.
1	Metallurgical Control use of Fluxes.	3
2	Clean Metal by using Ceramic Strainer Cores and Discs.	4
3	Coal Dust additional to Facing and Backing Sand.	1
4	Silverskin Blackings, Plumbago and Mould Dressings.	1
5	Cores using Crulin and Crudol Core Binders (Oil Bonded, Air Setting Cereal or CO.2 Binders).	2
6	Moulds Parted with Beecro Silica Free Parting Powder or Beecrol Parting Liquid.	1
7	Casting Feeding with Alsica Exothermic Feeder Heads.	4
8	Moulding Boxes supplied by B.F.U.	5
9	Chaplets, Studs, etc.	

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BRITISH FOUNDRY UNITS LTD

THE FOUNDRY SPECIALISTS

RETORT WORKS . CHESTERFIELD

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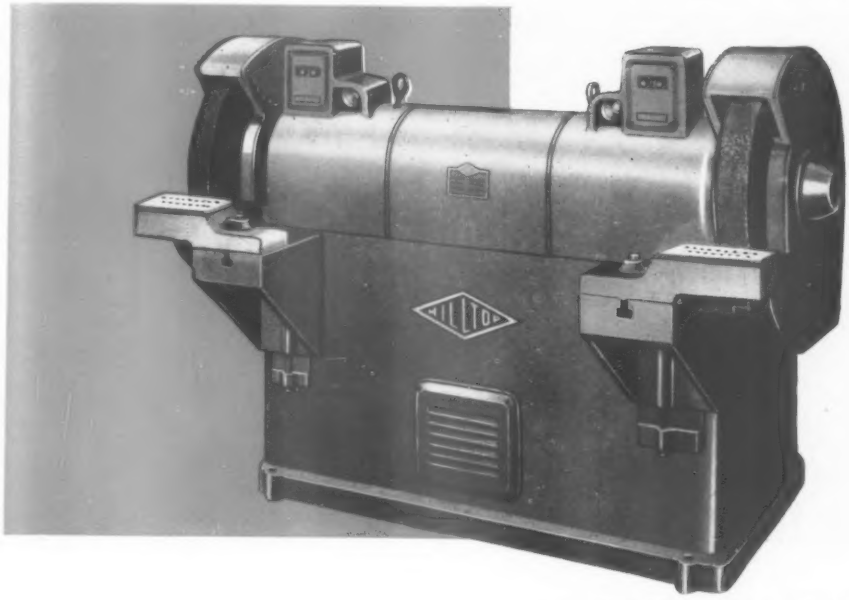
TWO GRINDERS — IN ONE!

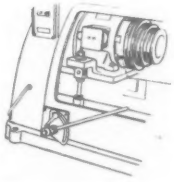


In this new HILLTOP Grinder, each wheel can be driven independently of the other—at speeds to suit individual operators. This gives *twice* the capacity —at no extra cost.

The HILLTOP safety grinders comply fully with the Dust and Fumes regulations now in force. Available to specifications of British Steel Castings Research Association; and of the British Cast Iron Research Association.

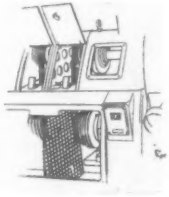
DUST CONTROL

Shrouds and other special features ensure complete extraction.



SPEED CONTROL

Three speed changes on each wheel—independent of speed of other wheel.

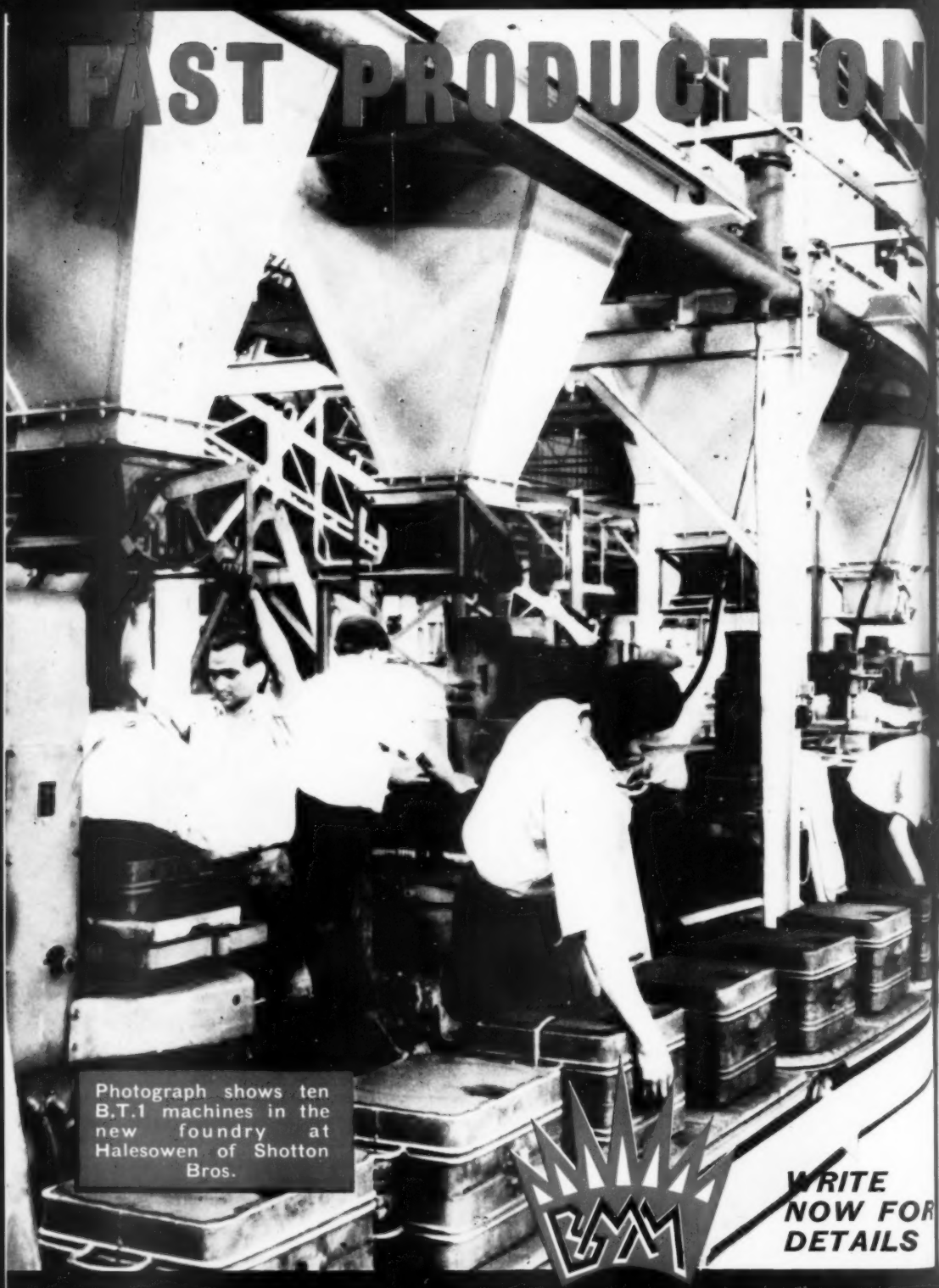


INDEPENDENT DRIVE

Each wheel driven by own motor — independent of the other.

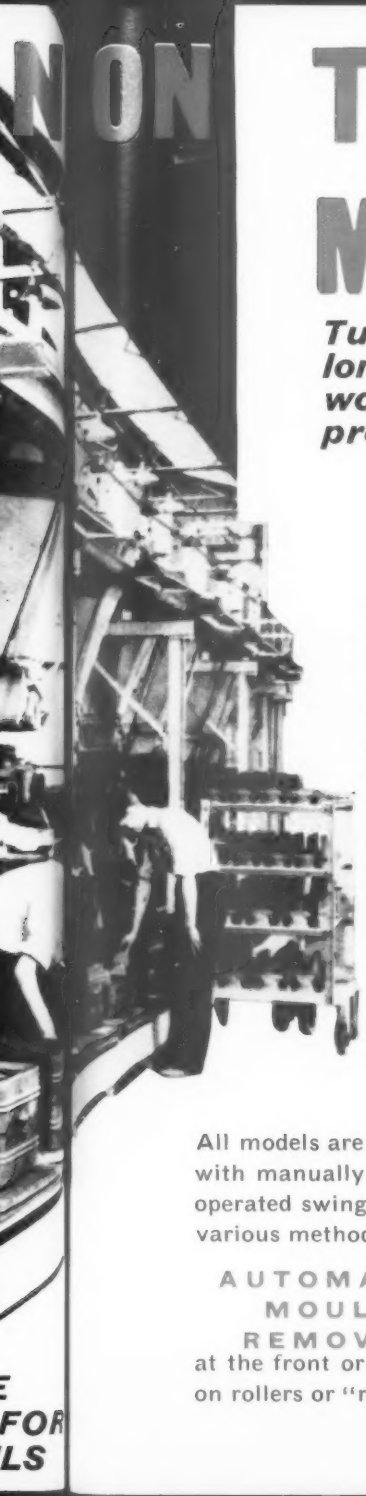
Write for full specification and prices to :
Molineux Foundry Equipment Ltd.,
Marlborough Works, Marlborough Rd.,
London, N.19. Phone : ARChway 4127

MOLINEUX


FAST PRODUCTION
Photograph shows ten B.T.1 machines in the new foundry at Halesowen of Shotton Bros.
WRITE NOW FOR DETAILS
BRITISH MOULDING MACHINE CO. LTD.

TURNOVER MACHINES

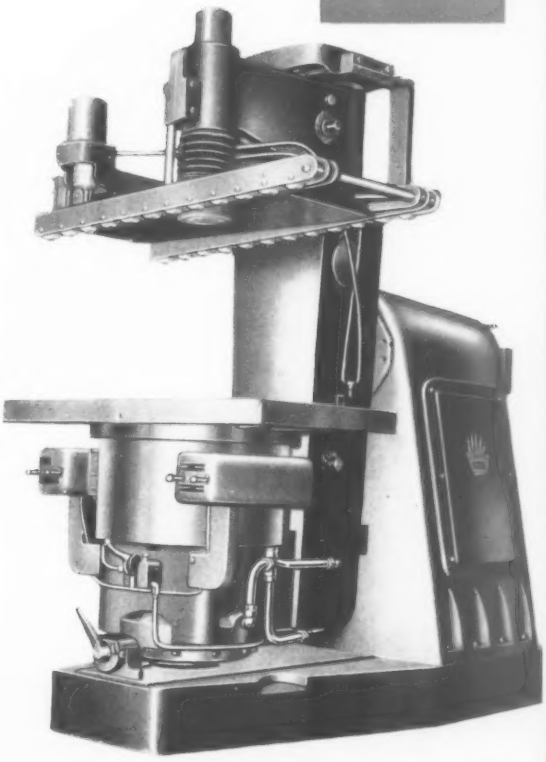
Turnover type moulding machines are no longer slow and our newest models are working a 30 second cycle in many production foundries at home and abroad.



AUTOMATIC JOLT TIMER Instantly variable for the required number of jolts.

One of many fully patented features is the **AUTOMATIC ANVIL** which ensures a solid jolt and a fast and unimpeded turnover.

BT5



All models are available with manually or power operated swing arm and various methods of —

AUTOMATIC MOULD REMOVAL
at the front or the side, on rollers or "rails".

D. WESTON WORKS - FAVERSHAM - KENT

LEADERS IN THE FIELD

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Standard Silicon Briquettes made from 45-50% grade and Special Silicon Briquettes made from 75-80% grade are always available.

UNION CARBIDE, leaders in the manufacture of alloy additive briquettes, provide the finest technical and advisory service available today.
Backed by years of research and development UNION CARBIDE studies minutely every individual problem, application and contingency to provide the most efficient and economic production of all grades of cast iron.
Prompt delivery and after-sales-service, allied to the consistent high quality and competitive prices of UNION CARBIDE briquettes, are appreciated by foundrymen everywhere as a part of UNION CARBIDE'S service to the metal industry.

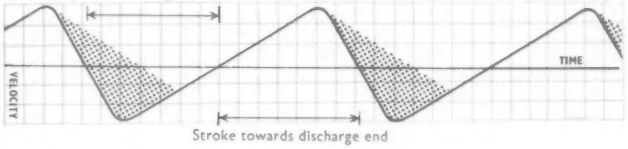
UNION CARBIDE
Trade Mark

UNION CARBIDE LIMITED
alloys division
103 MOUNT STREET LONDON W1
Telephone: Mayfair 8100

...haker conveyor discharging scrap on to a similar ...veyor. (The photographs reproduced in this advertisement are p...blished by courtesy of Ford Motor ...mpany, Limited.)

Sand cores and risers from engine component castings fall on to a shaker conveyor which carries them to a rotary scrap breaker and sand separator.

...haker conveyor showing type G 20 drive, driven by ...20 h.p. flywheel motor; this robust drive delivers ...ts peaks of energy.



SHAKER CONVEYING

in a mechanised foundry

The Distington-Goodman shaker conveyor is not a jigger conveyor. Its troughs move in only one plane on ball-bearing rollers and propel material by variations in their rates of acceleration and deceleration (these are shown in the time-velocity curve above: the shaded areas represent the movement of material independent from the movement of the troughs).

Distington-Goodman shaker conveyors have been used for many years for loading and conveying coal and rock. Their robust all-steel construction makes them ideal for handling hot materials in foundries and cement clinker and sinter.

They are easily extended and contracted and can be made self-loading from stock heaps. Lines of troughing can be made to deviate through angles up to 90°. Conveying capacity depends upon several factors but would normally exceed 60 t.p.h. on the level.

...ISTINGTON ENGINEERING COMPANY LIMITED

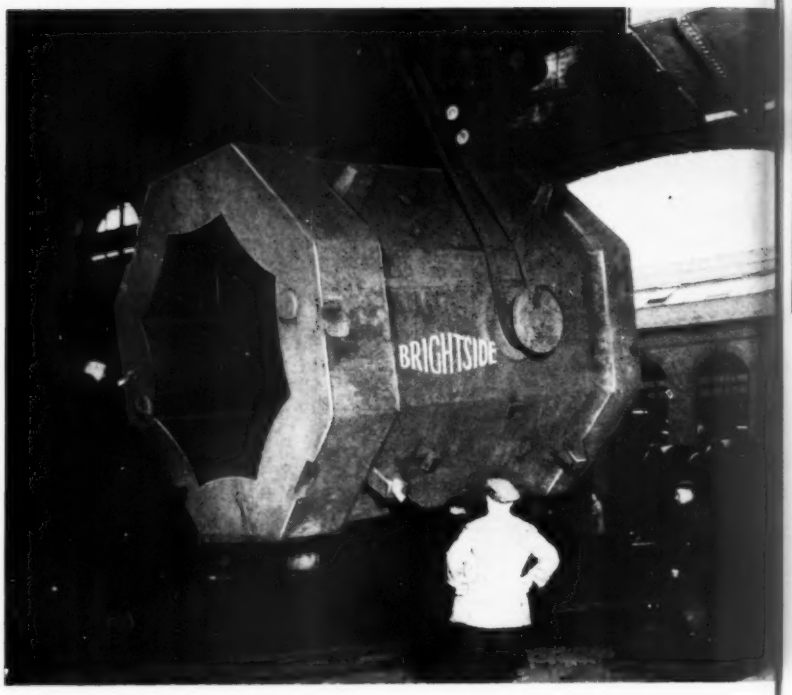
...ORKINGTON · CUMBERLAND · ENGLAND

DISTINGTON

DB.22

Another Perfect Strip

Using "DURRANS" No. 10 Prepared Blackin



130 ton Ingot Mould is re-produced by kind permission of The Brightside Foundry & Engineering Co. Ltd.

STEELMOL *for STEEL and SPECIAL IRON CASTINGS*

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TERRA FLAKE · COAL DUST · GANISTER AND
"ALUMISH" FOR ALUMINIUM Non-Silica PARTING POWDER

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PHŒNIX WORKS & PLUMPTON MILLS · PENISTONE · near SHEFFIELD

Telephone: PENISTONE 3121 and 3122 . *Telegrams:* BLACKING, PENISTONE

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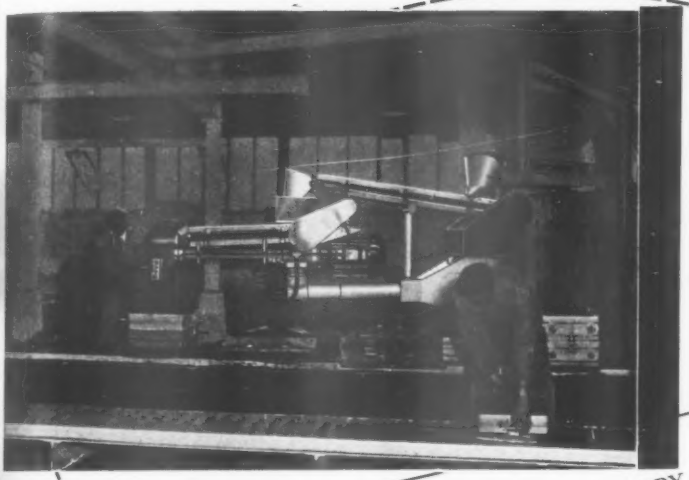


This photograph is appearing by kind permission of The Alliance Foundry Co. Ltd. of Luton, Bedfordshire.

THE ALLIANCE FOUNDRY CO. LTD.
ICKNIELD ROAD WORKS
LUTON

TELEPHONE: LUTON 2831
TELEGRAMS: AFMARL, LUTON.

DIRECTORS

OUR REF MAF/MD
YOUR REF

18th March, 1960.

Messrs. Foundry Mechanisations(Baillot)Limited,
Denbigh Road,
Bletchley,
Bucks.

For the attention of Mr. E.R. Millac, Managing Director.

Dear Sirs,

The writer promised to let you know our opinion of the Sand Projection Machine you installed for us in our Foundry, after same had been operating for six months.

We can certainly say that we are delighted with it. You will also be pleased to know that your machine rams much more uniformly than our previous sand ramming machine, the corners of the boxes being as evenly rammed as other parts of the mould, this alone being a proof of efficiency, with better castings as a result.

Furthermore, the maintenance of your Sand Projection Machine is only one third of that we used to spend on our previous machine, so that our output from this present unit is considerably increased.

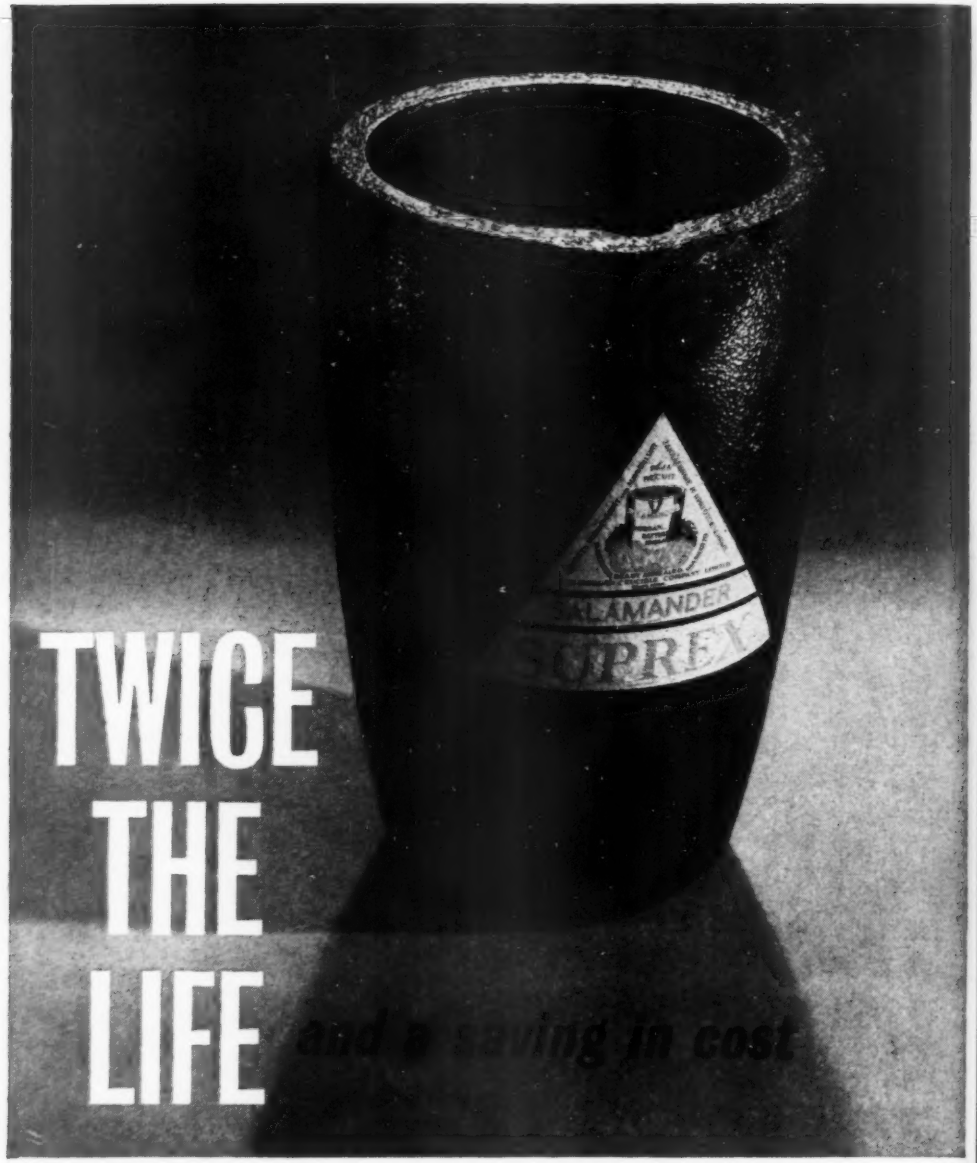
Yours faithfully,
For THE ALLIANCE FOUNDRY COMPANY LIMITED.

M.A. Farrell,
Deputy Managing Director.

ALL CONTRACTS ARE SUBJECT TO OUR GENERAL TERMS OF BUSINESS AS PRINTED ON OUR QUOTATIONS, AND ARE SUBJECT TO CHANGE WITHOUT NOTICE AND UNLESS SPECIALLY QUALIFIED FOR DELIVERY AT WORKS EXCLUSIVE OF PACKING

WHAT A USER THINKS OF OUR SAND PROJECTION MACHINE

FOUNDRY MECHANISATIONS (BAILLOT) LTD.
Main Offices & Works: DENBIGH ROAD, BLETCHLEY, BUCKS.
Tel.: BLETCHLEY 3354 *Regd. Office:* 29, CROMWELL ROAD, LONDON, S.W.7. *Grams:* "FOUMEC" BLETCHLEY.



For arduous conditions Salamander SUPREX Crucibles have no equal—practice has proved their exceptional resistance to thermal shock and their maximum resistance to erosive slags. SUPREX often double, sometimes treble, the number of heats; they maintain a constant melting speed, save fuel and ensure minimum costs per ton of metal melted. For long life and a saving in cost, turn to:

MORGANS **SUPREX CRUCIBLES**

For Lift-out, Bale-out and Tilting Furnaces

THE MORGAN CRUCIBLE COMPANY LIMITED
Wandsworth Works, Point Pleasant, London, S.W.18. Telephone : VANdyke 6422

Refined Cold Blast

PIG IRON

REFINED PIG IRON
FOR HIGH DUTY CASTINGS

CHILLED IRONS
FOR CHILLED CASTINGS

REFINED HEMATITES
FOR MALLEABLE CASTINGS

In 15 ton casts direct from receiver to required analysis

Castings made from these irons have greater density and toughness. You will have fewer rejections, greater freedom from cracks, breaks and other defects.

SPECIAL NICKEL & CHROME ALLOYS

Hand Samples on Request

WEST MIDLAND REFINING CO. LTD.

MILLFIELDS ROAD · BILSTON Tel 41069

trouble-free bunker discharge

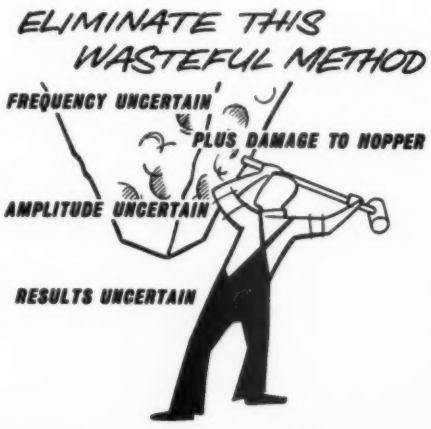
The primitive, inefficient method commonly used for clearing material which sticks in a storage bunker is by applying a sledge hammer to the side of the hopper. This is a form of low frequency, uncontrolled vibration. When vibration is applied at the *correct* frequency, the *correct* amplitude and the *correct* point of application, almost any material can be satisfactorily discharged.

SINEX has the experience with a wide variety of materials and a wide range of hopper designs to recommend how vibration should be applied effectively to solve *your* particular problem.

The three examples illustrated show three different combinations which are typical of many applications, but even these, whilst using the same type of unit, can only be effective if the types of unit themselves are placed in the correct position and have the correct frequencies and amplitudes of vibration, to suit the characteristics of the material to be discharged.

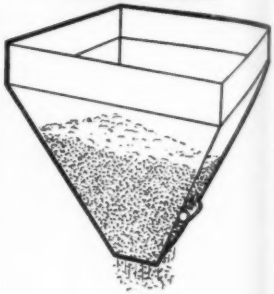
It would pay you, therefore, to make use of our experience and to consult us on your particular problem.

Send for relevant details and information sheet.



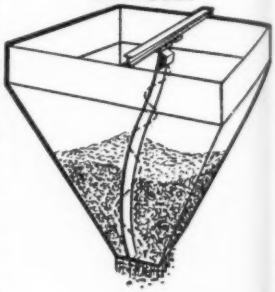
These are some of the many materials which we have handled satisfactorily and ensured trouble-free bunker discharge: Pulversized and small coal, iron-ore, coke, lime, flour, grain, grist, foundry sand, soda ash, cullet, sand, gravel, granite chips and all road stone materials.

LESS-DIFFICULT



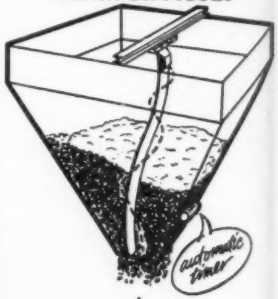
The installation of an external vibrator to a steel hopper.

DIFFICULT



The vibrating reed for application where external vibration is impractical due to structural or other difficulties and if the bunker is made of concrete.

EXTRA-DIFFICULT



A combination of internal and external bunker vibration. Where the external vibrator is timed for 'on and off', the vibration frequency, on slowing down, goes through the natural resonance of the bunker, irrespective of load material contained.

Sinex

Bunker clearance Equipment

SINEX ENGINEERING COMPANY LIMITED, CENTRAL WAY, NORTH FELTHAM TRADING ESTATE, FELTHAM, MIDDLESEX
Tel: Feltham 5081 (5 lines) Telegrams: Sinexvibro Feltham.
ASSOCIATED COMPANIES IN PARIS, BRUSSELS AND ZURICH.

FOCUS ON 'FULBOND'

N° 4 Plasticity

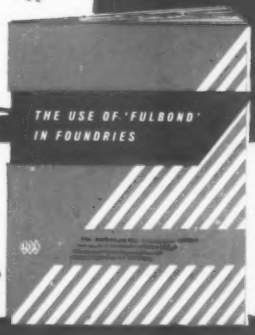
Many moulding sands have little plasticity even before use, and with most natural sands progressively less after each casting cycle. This is partly due to the presence of coal dust, ash and build-up of fines from dehydrated clay.

The importance of plasticity is only too obvious when the moulding sand reaches a stage which may be described as 'brittle'. Good plasticity is essential for deep draws and clean pattern stripping in all types of foundries.

Additions of new sand effect some improvement in plasticity. This is only temporary, however, because the clay constituent is contaminated with low fusible minerals.

High plasticity is one of the striking characteristics of Fulbond. This is partly due to its complex crystal structure and partly to its action in water. Regular additions of Fulbond to natural sands soon improve plasticity, texture and general workability. Many jobbing foundries find Fulbond indispensable for regenerating floor sand and increasing plasticity to suit deep vertical draws and intricate moulds.

Good plasticity is one of the advantages that synthetic sand users have over natural sand users, but it is fully appreciated that synthetic sand can only be used when it fits the practice and where suitable equipment for processing is available.



For a copy of this Brochure please write to:

THE FULLERS' EARTH UNION LTD

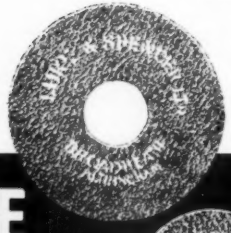
Patteson Court, Nutfield Road, Redhill, Surrey

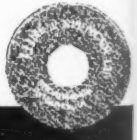
A member of The Laporte Group

CMF59

HOW TO CUT high speed grinding COSTS

Two important factors
make Borolite wheels the obvious choice
for efficient high speed grinding
at lowest cost.
Firstly, as a Borolite wheel wears,
the new grinding surfaces presented to the work,
are equally efficient throughout its long life.
Secondly, our technicians will advise you
on the correct grade of wheel
for any particular job, to ensure
high speed production with maximum economy.





BOROLITE *high speed* ***ABRASIVE WHEELS***

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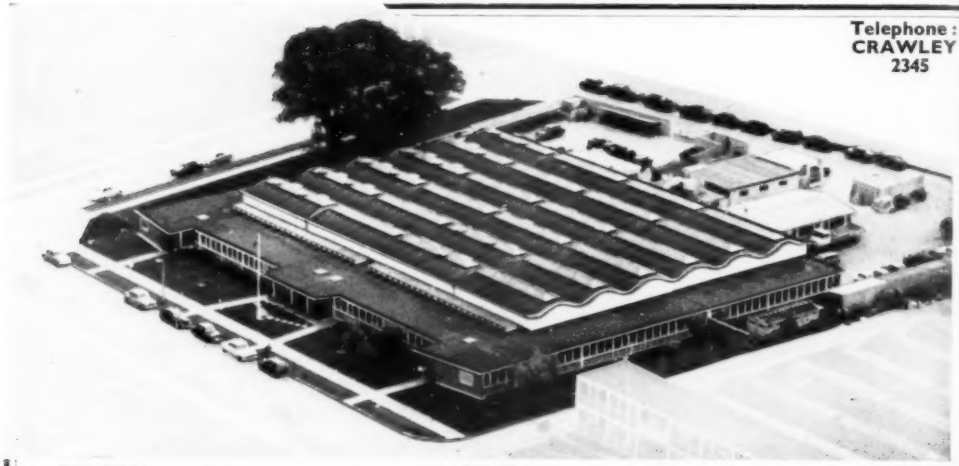

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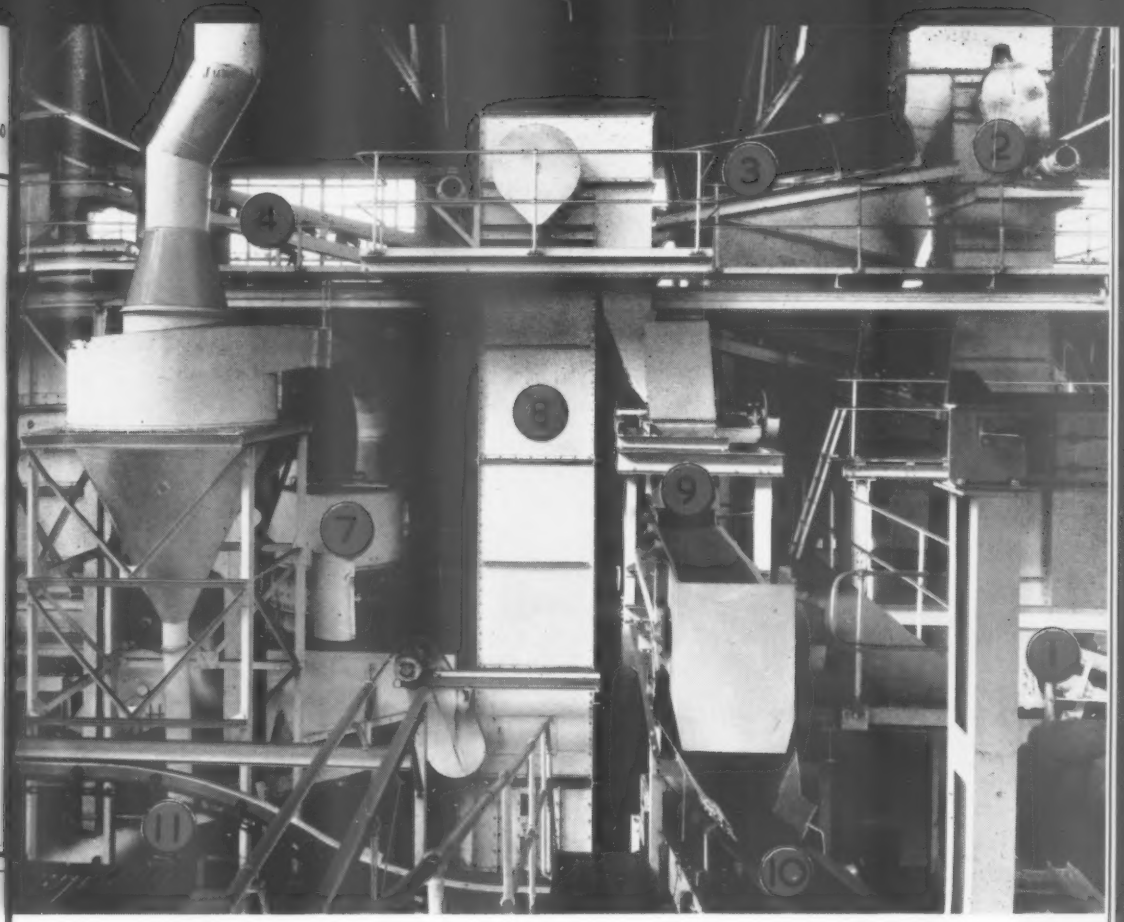

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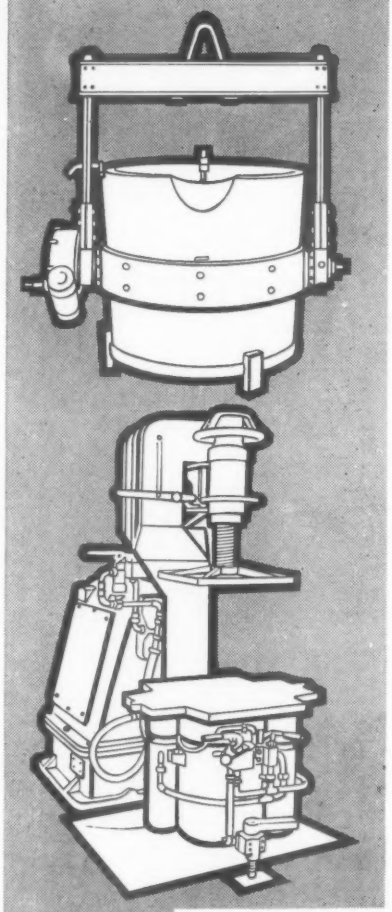

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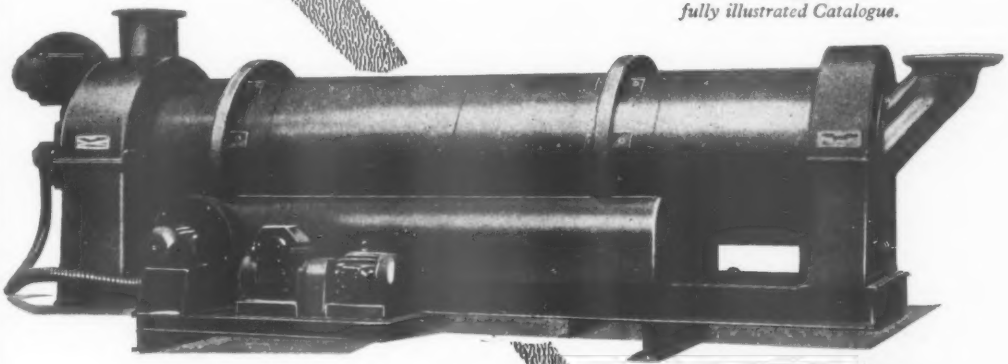

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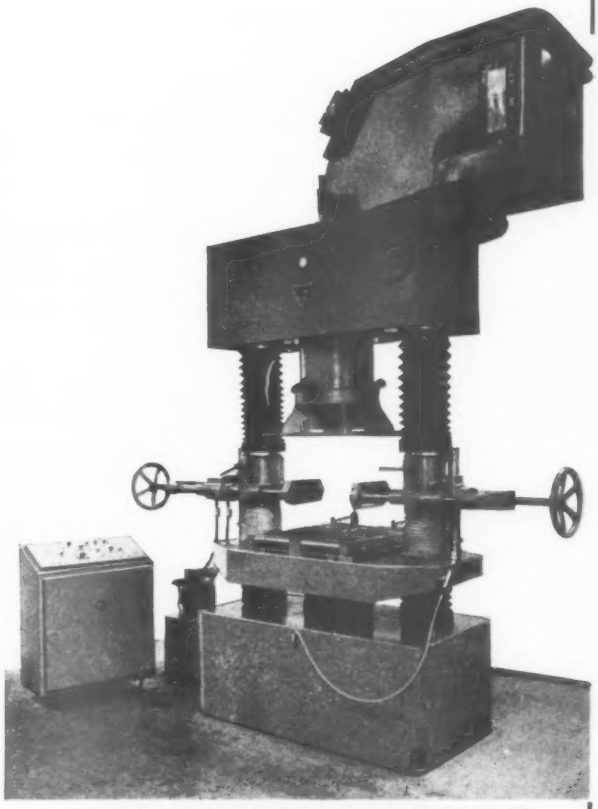

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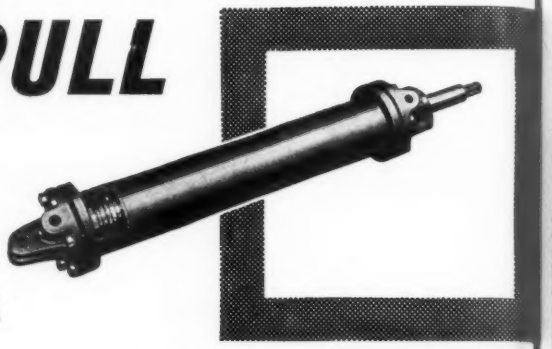

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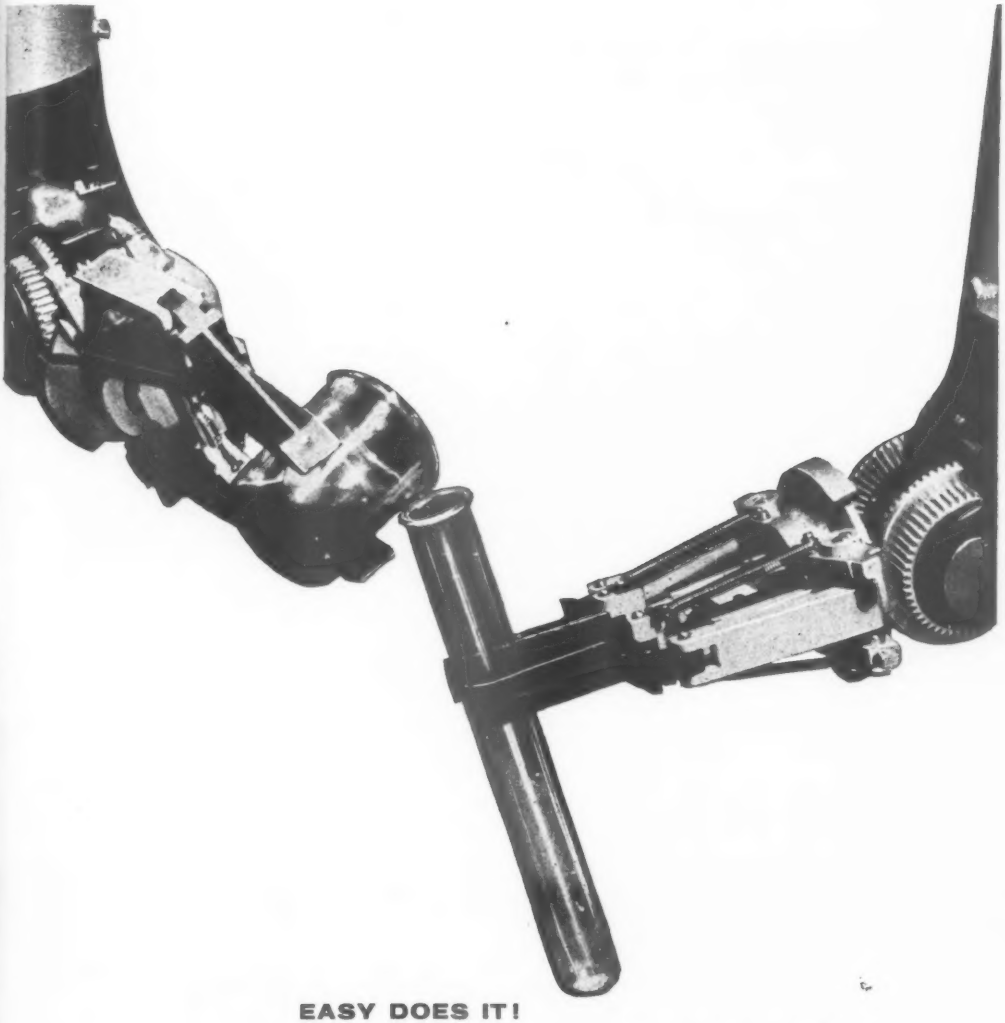

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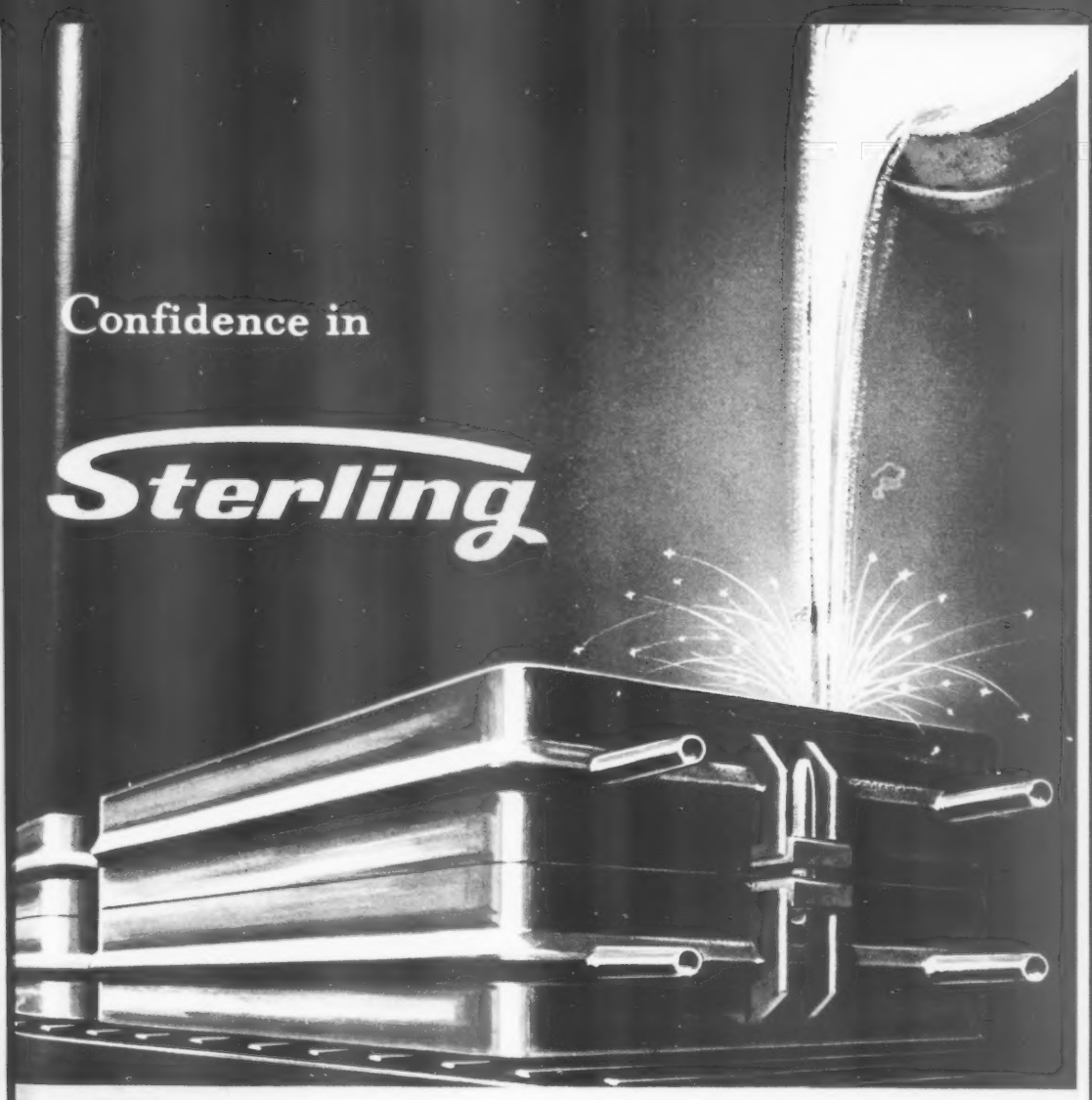

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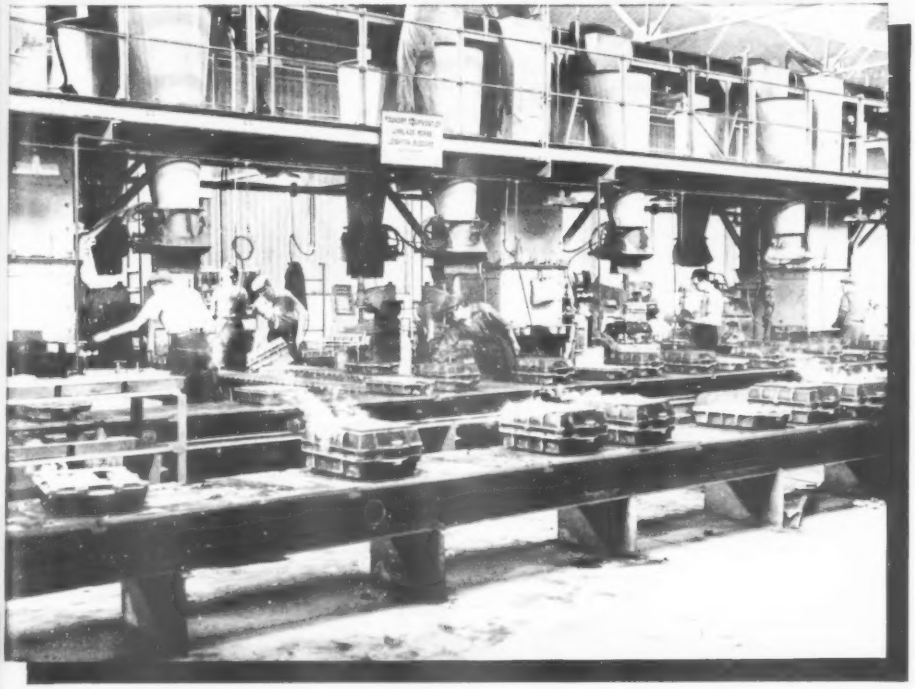

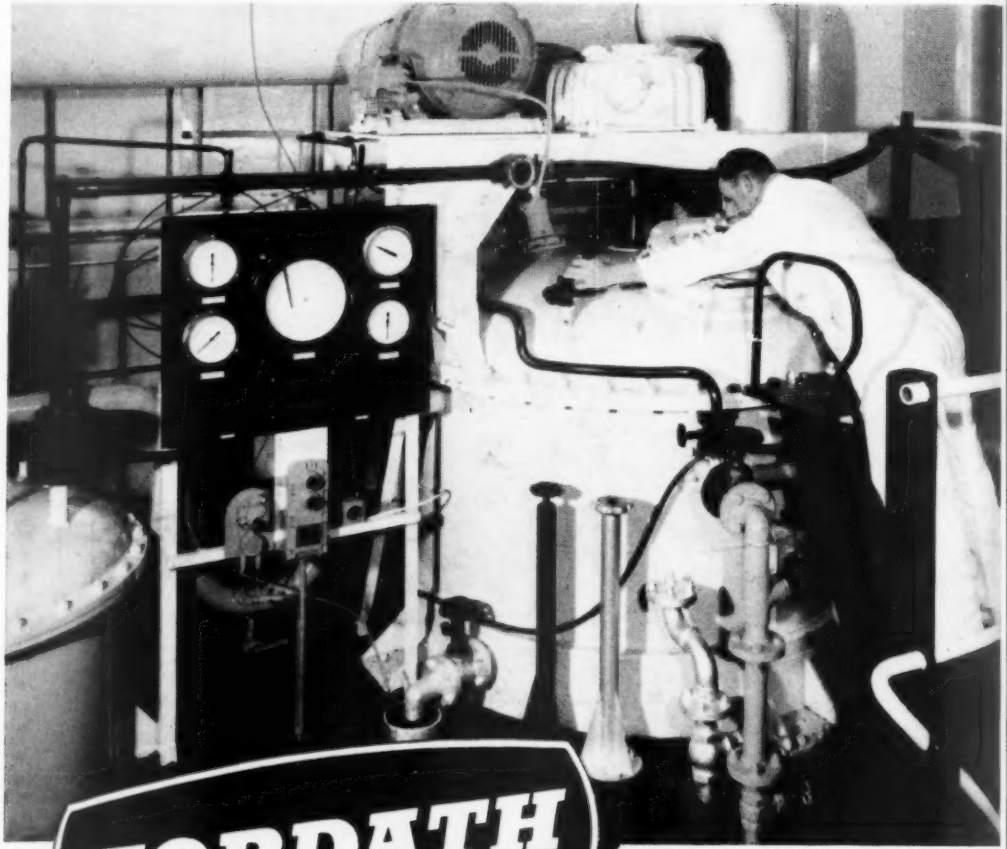

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PRINCIPAL CONTENTS

PAGE

European Foundry Apprentice Competition

Details of the competition are given including the programme, presentation of awards, the dinner and closing ceremony 745

Progress from Ornament to Utility

Further accounts of Midland works to be visited by parties of the Institute of British Foundrymen during the Malvern conference, next week 753

Concors des Apprentis Mouleurs Européens. 745

Progrès accomplis, des Choses ornamentales aux Objets utiles.
Inspection d'usines situées dans les "Midlands" de l'Angleterre qui seront visitées par les groupes de l'Institute of British Foundrymen, pendant la Conférence de Malvern. 753

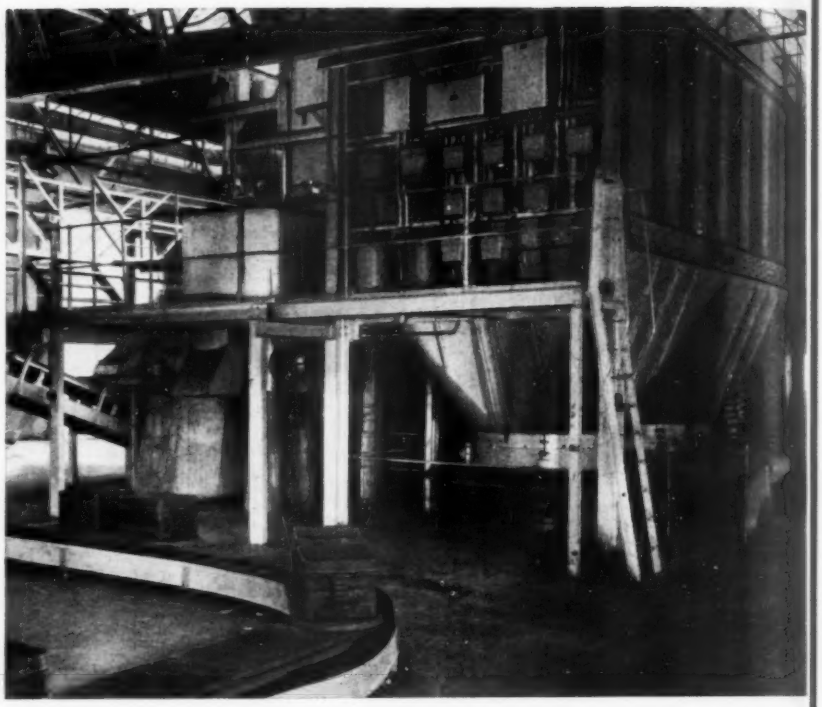
Leistungswettbewerb der Europäischen Formerjugend. 745

Fortschritt von der Verzierung zur nützlichen Anwendung.
Eine Übersicht über die in den englischen "Midlands" gelegenen Werke, welche von Gruppen von Mitgliedern des Institute of British Foundrymen während der Tagung in Malvern besucht werden. 753

Features, News, Commercial Information and Statistics

Leader: Importance of Training 743
American Apprentice Competition 744
NFC "Sandwich" Course 744
American Copper Development Research 744
Jones Crane Photo Competition 744
British Electrical Convention 761
Swedish Foundry Industry 761
Personal 762
British Standards Institution 763
Another Bicentenary 763
New Conditions for Builders' Merchants 763
News in Brief 764
Company News 768
Raw Material Markets 770
Current Prices of Iron, Steel and Non-ferrous Metals 772
Import and Exports of Iron and Steel in April 774

Photograph published by courtesy of Messrs. Shotton Bros. Ltd. Malleable Ironfoundry.



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Vol. 108 June 16, 1960 No. 2271

Importance of Training

The Continentals are much more alive to the importance of training personnel than we in this country, and the European Committee of Foundry (Employers) Associations has a special sub-committee to deal with this important activity. As there are but few foundry executives in this country who have real knowledge of what the European Committee does, a report by the chairman, Herr L. Frede, is commended for general reading, especially as Great Britain is a member country. He opens his report with the following statement—"There can be no doubt of the importance of training. Men are, and will remain, the instigators of all economic activities and they will perform their task all the better if they have been well prepared. However, it is not sufficient to demand competence and find it ready made. It is, on the contrary, the result of continuous effort by all concerned, both on the material plane and in the realm of ideas."

This Committee has, in its few years of existence, been productive of quite a few innovations. First, it sponsored the idea of a European apprentice competition* which has done excellent propaganda, especially in this country—on television and through other media—for recruitment to the foundry industry. Then there has been established in the South of France a holiday camp, which, for three weeks in August, will accommodate some fifty apprentices aged from 16 to 19 from the member-countries of the ECFA. A third activity, for young men over the age of 19, is a scheme for their exchange between firms in different countries so that they can acquire new "angles" on their craft.

The more serious newspapers of this country's national Press were unanimous in expressing, when dealing with the recent engineering apprentices strike, that by and large, the employers were giving insufficient attention to the systematic training of the lads entering their employment. To our mind, the period of training could usefully be curtailed and the tempo of the training increased. If for no other reason than patriotism, employers must bear in mind that their systems of training are not infrequently in competition with State-operated schools of other countries and the training they give must be equally methodical and as thorough in its scope. If they cannot do this within their own works, then recourse must be had to the several external organizations available. A marked change in the nature of an order-book can quickly convince employers of the wisdom of having a properly-trained and versatile staff, well capable of coping with a new set of conditions. It is a pity that it needs the onset of more-difficult trading conditions before a vast number of employers will realise that the sound training of apprentices is an excellent investment for coping with the exigencies of the future.

* See pages 745 to 752 of this JOURNAL.

American Apprentice Contest

A total of 461 employees from 182 separate companies participated in the annual Robert E. Kennedy Memorial Apprentice Contest, sponsored by the American Foundrymen's Society. This is a strong indication of the value of the competition, which has been held since 1924, to the casting industry. Under the direction of the AFS Education Division, the contests cover wood and metal patternmaking, iron, steel and non-ferrous moulding. Prizes for the three winning entries were awarded at the annual AFS Foundry Congress, held this year in Philadelphia, from May 9 to 13. The three winners in each division were:

Wood Patternmaking: First: A. Kravetz, (Progress Pattern Company, Detroit); second: R. Koehnle (Reliable Pattern Works, Bedford Heights, Ohio) and third: D. Garn, Campbell Pattern Company, Sante Fe Springs, Calif).

Metal Pattern: First: C. D. Lee (Caterpillar Tractor Company, Peoria, Ill.); second: R. J. Sekala (Ford Motor Company, Berea, Ohio); and third: J. Puszykowski (Chevrolet-Saginaw Grey Iron Foundry, Saginaw, Mich.).

Iron Moulding: First: A. Tynilainen (John T. Hepburn Company, Limited, Toronto, Ontario); second: R. R. Kuykendall (Caterpillar Tractor Company, Peoria, Ill.); and third: M. Snyder (Atlas Foundry & Machine Company, Tacoma, Wash.)

Steel Moulding: First: J. C. Leinss (Maynard Electric Steel Casting Company, Milwaukee, Wis.); second: J. E. Gift, Jr. (Dodge Steel Company, Philadelphia); and third: T. S. Baich (Clark Equipment Company, Buchanan, Mich.).

Non-ferrous Moulding: First: P. E. Durben (Eck Foundries, Inc., Manitowoc, Wis.); second: L. J. McKee (also of Eck Foundries); and third: D. M. Jenniges (Puget Sound Naval Shipyard, Bremerton, Wash.).

Five first-prize winners received their awards personally at Philadelphia, as guests of the Society. The national competition is preceded by local elimination contests and this year 35 local AFS foundry groups throughout North America participated locally in the event.

American Copper Development Research

Four research investigations, instituted by the Copper Products Development Association, Room 1810, 25, Broadway, New Yorks, USA, to find and promote uses for copper, include one for the "Protection of Copper by Organic and Inorganic Coating Films" for which the British Non-Ferrous Metals Research Association will be responsible. The three other investigations are: "Determination of Increased Uses for Copper and Copper-alloys in the Transportation Industry," the contract for which has been awarded to the Southwest Research Institute, San Antonio, Texas; "An Engineering Survey for New Uses for Copper in the Construction Industry" and "Development of Tarnish-resistant Copper by the Metallurgical Surface Treatment," both of which have been awarded to the Battelle Memorial Institute, Columbus, Ohio. A contract for a technical publications programme has been awarded to Clyde Williams & Company, Columbus, Ohio, a research and industrial management advisory firm.

NFC "Sandwich" Course

An encouraging response has been received by the National Foundry College to its three-year "sandwich" course for training potential foundry executives which is to open in Wolverhampton in September. Many enquiries and 11 actual applications—eight from the United Kingdom and three from overseas—have already been received. (Details of the course were given in the JOURNAL, February 18 issue, page 207.)

The student selection committee of the College recently interviewed the United Kingdom applicants and was impressed by the general standard of the applicants, and particularly pleased to find that a new type of young man is being attracted to the industry. From the interviews it would appear that some founding firms have taken young men from grammar and public schools who have obtained—or who will obtain this year—general certificate of education advanced level passes in mathematics and the sciences. This the firms have done in order to meet their future needs for highly-trained executives. The young men so far accepted for the Course will obtain some foundry experience before entering the College in the autumn. The selection committee will hold further meetings to interview applicants, in July. (Further information and application forms may be obtained from the head of the College, Stafford Street, Wolverhampton.)

Malvern Conference Fund

The following additional subscriptions to the Institute of British Foundrymen's Malvern conference fund are gratefully acknowledged by the Council of the Institute:—

	£	s.	d.
Previously acknowledged	2,621	1	0
Hale & Hale (Tipton), Limited ..	100	0	0
Tangyes, Limited	26	5	0
Stanley N. Evans, Limited	10	10	0
Midland Electric Manufacturing Company, Limited	10	10	0
Stourbridge Engineers & Ironfounders, Limited	5	5	0
Ham, Baker & Company, Limited ...	5	0	0
W. Whitehouse & Sons (Halesowen), Limited	5	0	0
Brettell Lane Foundry, Limited ...	3	0	0
Frank Wade, Limited	2	2	0
	2,788	13	0

"Jones Crane" Photo Competition

A first prize of 250 guineas and eight additional prizes, bringing the total to 600 guineas, are being offered in a competition to find "the best black and white picture of Jones cranes." Sponsored by George Cohen Sons & Company, Limited, the 600 Group company which handles UK sales of these cranes, the competition is being run by the 600 Group publicity department, Wood Lane, London, W.12, from which source the rules governing the competition are available. The closing date is December 31.

Announcing their plan, the company say, "We have many photographs of Jones Cranes showing their industrial capabilities and versatility; what we are seeking are pitcures in which the accent is on photographic art."

European Foundry Apprentice Competition

France first, Great Britain second and Germany third, in Team Event

For the first time, the European Foundry Apprentice Competition has been held in the United Kingdom and the full results and details of the awards are now available for comment. Of the three countries who sent teams of three apprentices each to compete for the major award, the team from France was successful, the British team came next and that from Germany third. Brief particulars of the other results were printed in the June 2 issue of the JOURNAL and details are now appended (Table I). The whole of the Competition arrangements in this country were in the hands of a United Kingdom Committee, under the chairmanship of Dr. C. J. Dadswell, B.SC., M.I.MECH.E., and constituted to embrace representatives from each section of the industry—steel, iron and non-ferrous—acting with secretarial support of the Joint Iron Council and the Council of Ironfoundry Associations. (Mr. F. C. Hayes, training officer of the CFA, was secretary of the Committee.)

Programme

The competition programme in this country commenced on Sunday, May 22, with the reception of the competitors at the Birmingham Exchange & Engineering Centre. On Monday, the essay, calculations and written test in technology were held at the National Foundry College, Wolverhampton. These were followed on the Tuesday and Wednesday by practical tests at the foundry of F. H. Lloyd & Company, Limited, Wednesbury, and on Thursday by the drawing test which was held at the National Foundry College. It is interesting to record at this juncture that the apprentices from abroad—along with judges and observers—were very complimentary about the arrangements made for them at F. H. Lloyd's and indeed throughout "competition week." The drawing test was followed—in the way of relaxation—by a sightseeing visit to Stratford on Avon, and on the following day (Friday), the competitors left Wolverhampton for London. There, the young men were taken on a coach tour arranged by the British Council, and the week ended with the awards being presented at a dinner held at the Tallow Chandlers' Hall.

COMPETITION, COMPETITORS AND RESULTS

Seventeen apprentices took part in the Competition, each under the age of 20, from eight countries—Austria, Denmark, France, Germany, Holland, Italy, Sweden, and Great Britain. The objective for each young man was to make the best sound engineering casting—a sizeable and complex component for steam industrial plant was chosen—and to sit for written examinations in the theory of foundrywork. In actual fact, the casting to be made was a steam cylinder with separate top and

Group of competitors, judges, observers and organizers photographed on arrival at the James Bridge steel foundry of F. H. Lloyd & Company, Limited, where the practical tests were held.

bottom flanges, each requiring a joint to facilitate their removal. Thus, a four-part mould was needed. The pattern sizes were: 13⅜-in. deep, without prints (17-in. deep with prints), 18-in. long and 18-in. wide. The estimated weight of the casting, etc., was 320 lb. in iron, 375 in steel and 400 in gunmetal. To be incorporated in the mould were four or five fairly complicated cores and a separate loose-piece which had to be withdrawn after the pattern had been removed.

As reported in the June 2 issue of the JOURNAL, the first place went to Mr. R. Flahaut (France) and the second and third places were taken by Mr. C. F. Corbett and Mr. T. J. Vincent respectively (Great Britain). The team prize was awarded to France and individual subject prizes were presented to: Mr. Flahaut (best in the practical test), Mr. Vincent (best in technology), Mr. J. C. Chandelier (France) (in drawing) and Mr. Corbett (in calculations). Details of all the marks received by the participants are shown in Table 1.

Presentation of Awards

Mr. P. J. M. Thomas, M.P., Parliamentary Secretary to the Ministry of Labour, presented the awards at the closing ceremony and dinner held on the Friday evening at the Tallow Chandlers' Hall in the City of London. In addition to the team prize (won by France), subject prizes (in the form of wallets) were also awarded by the European Committee in the following subjects—practical, technology, drawing and calculations. The bronze trophy which was presented to the winning team was made by Mr. Leslie Durbin, M.V.O. of North London. (A picture of this was published in the April 14 issue of the JOURNAL). Bronze plaques were also presented (by the Worshipful Company of Founders) to all the competitors taking part. Other prizes awarded consisted of a transistor radio (1st prize), an electric shaver (2nd prize), a "super" pocket-knife (3rd), a fountain pen (4th), and a cigarette-lighter (5th). In addition to the plaque, each competitor received a diploma and a souvenir book about London.

Closing Ceremony and Dinner

Dr. C. J. Dadswell (chairman of the United Kingdom Committee) presided at the closing dinner and with him at the top table (in addition to Mr. Thomas) were Mr. D. Waeles (*Syndicat Général des Fondeurs de France*); Mr. N. P. Newman, C.B.E., J.P. (president, Joint Iron Council, member of the United Kingdom Committee); Dr. J. G. Pearce, C.B.E., M.I.MECH.E., M.I.E.E., F.I.M. (chief judge of the

British Competitors and their Careers:

Great Britain was represented by three apprentices in the Competition and in the April 28 issue of the JOURNAL, brief biographical notes were given of one of them—Mr. Vincent from Hamworthy Engineering, Limited. What follow are brief particulars of the other British competitors and also of Mr. W. N. Styles who was first reserve (but not called upon). It should be realized that these young men—and also the competitors from overseas—represent the best each country could put forward with the age limit imposed, this having been established by national elimination competitions held earlier.

C. F. Corbett: Mr. Corbett was educated at the Edward Shelley High School, Walsall, and obtained his GCE in three subjects. Now in his third year of a five-year apprenticeship his training progressed from a basic instructional course through the various aspects of steelfounding. This progress took him through light, medium and heavy box-moulding, sweep and floor moulding, with technical instruction at the appropriate stage. Further training included estimating from blueprints in the sales department and project work to broaden the perspective. In addition to his training at F. H. Lloyd & Company, Limited, Mr. Corbett is pursuing technical studies at the County Technical College, Wednesbury, where so far he has obtained an intermediate certificate in foundry and patternmaking practice from the City and Guilds of London Institute. In his spare time, he plays the guitar for a local semi-professional group.

R. Morley: Mr. Morley was educated at St. Bartholomew's Secondary Modern School, Wednesbury, and joined his present firm (Bradley & Foster, Limited) in 1956 as an apprentice, with the intention of becoming a patternmaker. During his apprenticeship, he has attended two courses at the National Foundry Craft Training Centre, West Bromwich. He has also attended part-time day and evening classes at the County Technical College, Wednesbury, and holds an intermediate City and Guilds certificate in patternmaking and foundry technology. Mr. Morley is at present completing his third year in foundrywork and takes his final C. & G. certificate in foundry technology next year, following, he hopes, with his final C. & G. in patternmaking. In his spare time, he is keenly interested in sports, particularly football and swimming.

W. N. Styles: Mr. Styles who was first reserve in the Competition is 19 years of age and joined his present firm (W. & T. Avery, Limited) in 1957, direct from the Joseph Leckie Comprehensive Secondary School, Walsall. Included in his training record are four one-monthly periods at the National Foundry Craft Training Centre.

C. F. CORBETT

T. J. VINCENT

R. MORLEY

Competition); Mr. L. Frede (chairman of the Training Sub-Committee, European Committee of Foundry Associations); Mr. A. A. Part, (Under Secretary, Ministry of Education); Mr. A. C. Jennings (Master of the Worshipful Company of Founders); and Mr. G. Kahlbaum (training department, Buderus'sche Eisenwerke). Also attending the dinner—apart from all the seventeen young men who participated in the Competition—were Mr. J. Bamford, B.SC. (head of National Foundry College, and one of the judges); Mr. R. Barber, A.C.I.S. (director and secretary, British Steel Founders' Association); Mr. J. Barwell (president, British Bronze and Brass Ingot Manufacturers' Association); Mr. D. B. Beynon (member of the United Kingdom Committee); Mr. J. Brackenbury; Mr. A. J. N. Brown (president, Association of Bronze and Brass Founders); Mr. J. W. Butler (assistant director, CFA); Mr. G. H. Charsley (one of the judges); Mr. W. H. Crawshaw; Mr. K. N. Davis (chairman, Education and Training Committee, CFA); Mr. Ir. A. De Bruin (a competition judge from overseas); Mr. G. Dumay (*Syndicat Général des Fondeurs de France*); Mr. M. Durand (also a judge); Mr. C. English (chief inspector of technical education, Ministry of Education); Mr. B. J. Faulkner (CFA); Mr. H. Frommert (*Wirtschaftsverband Giesserei-Industrie*); Mr. J. W. Gardom, A.M.I.MECH.E. (another of the UK judges); Mr. T. O. Garmark (Swedish Metal Trades Employers' Association); Mr. G. Gauthier (*Syndicat Général des Fondeurs de France*, a judge from France); Mr. M. J. Glenny (chairman, CFA, and member of United Kingdom Committee); Mr. R. Guerin (judge); Mr. F. C. Hayes; Dr. Ing. W. Heinrichs (judge); Mr. P. B. Higgins (ABBF); Mr. J. Hird (National Foundry Craft Training Centre); Mr. G. Jaccarino (judge); Mr. A. C. Jennings (Master of the Worshipful Company of Founders'); Mr. E. Jorgensen (judge); Mr. C. H. Kain (British Steel Founders' Association); Mr. E. Kay; Mr. G. Lambert (secretary, IBF, and a member of the

"Young men at work:" (a) Competitors in the "steel" section of the contest, where they are engaged in coremaking. (b) General view of F. H. Lloyd's training centre during the course of the Competition. The young men are making their second set of cores after moulding. (c) One of the castings being judged; (from left to right) are Baron Krayenhoff (one of the judges), Mr. R. Odoux (Syndicat des Fondeurs du Nord et du Nord-Ouest), Mr. G. Gauthier, Mr. Plückebaum and Mr. A. De Bruin. (d) Drawing test in progress at the National Foundry College.

TABLE 1.—*Detailed Competition Marking.*

Order of placing.	Name and Country.	Total marks (max. 170).	Practical (max. 100).	Theory (max. 70).	Drawing (max. 30).	Technology (max. 20).	Calculations (max. 20).
1	Flahaut, R. (France)	137.9	78.5 (1)	59.4 (2)	27.5 (2)	15.5 (5)	16.4 (5)
2	Corbett, C. F. (Great Britain)	131.9	72.0 (5)	59.9 (1)	25.5 (4)	16.0 (3)	18.4 (1)
3	Vincent, T. J. (Great Britain)	123.5	72.3 (4)	51.2 (5)	18.8 (6)	18.0 (1)	14.4 (6)
4	Thornberg, S. I. (Sweden)	122.2	74.5 (2)	47.7 (7)	16.2 (14)	14.9 (7)	16.6 (4)
5	Degueldre, J. M. (France)	121.3	62.3 (8)	59.0 (3)	27.0 (3)	14.0 (9)	18.0 (3)
6	Rosati, O. (Italy)	118.0	74.3 (3)	43.7 (10)	16.5 (12)	16.6 (2)	10.6 (11)
7	Chandelier, J. C. (France)	114.4	61.5 (9)	52.9 (4)	28.7 (1)	12.0 (15)	12.2 (9)
8	Hoffman, P. (Germany)	104.8	54.6 (11)	50.2 (6)	16.5 (12)	15.5 (5)	18.2 (2)
9	Peterson, M. (Denmark)	100.4	66.8 (7)	33.6 (15)	17.5 (8)	10.1 (16)	6.0 (16)
10	Morley, R. (Great Britain)	100.3	52.6 (15)	47.7 (7)	20.0 (5)	13.9 (11)	13.8 (7)
11	Vendrame, G. (Italy)	99.7	69.0 (6)	30.7 (17)	12.5 (14)	13.6 (12)	4.6 (17)
12	Roske, G. (Germany)	99.5	53.4 (12)	46.1 (9)	18.0 (7)	15.9 (4)	12.2 (9)
13	Puffer, R. (Germany)	97.8	57.0 (10)	40.8 (11)	17.3 (9)	10.1 (16)	13.4 (8)
14	Kristiansen, F. (Denmark)	91.0	53.2 (13)	37.8 (14)	14.2 (15)	14.0 (9)	9.6 (12)
15	Ritzinger, R. (Austria)	90.8	52.9 (14)	37.9 (13)	17.5 (8)	13.6 (12)	6.8 (15)
16	Van de Vegt, A. A. (Holland)	88.2	48.6 (16)	39.6 (12)	17.5 (16)	14.1 (8)	8.0 (14)
17	De Groot, A. (Holland)	69.0	36.0 (17)	33.0 (16)	12.5 (16)	12.1 (14)	8.4 (13)

United Kingdom Committee); Mr. K. K. Laursen (Danish Foundry Association, also a judge); Mr. K. Marshall (director, CFA, and a member of United Kingdom Committee); Mr. W. S. Matthews, J.P. (member of United Kingdom Committee); Mr. H. Mohnfeld (judge); Mr. J. G. Neenan; Mr. R. Odoux (*Syndicat des Fondeurs du Nord et du Nord-Ouest, France*); Mr. A. R. Parkes (FOUNDRY TRADE JOURNAL); Mr. G. C. Paterson, B.SC (ENG.) (president, Foundry Trades Equipment and Supplies Association); Dr. J. G. Pearce, C.B.E., M.I.MECH.E. (chief judge); Mr. W. Plückebaum (judge); Mr. D. Richardson (Central Youth Employment Executive); Mr. H. Roberts (*Birmingham Post*); Mr. F. D. Roper, C.G.I.A.; Mr. E. C. Rowen (president, National Society of Master Patternmakers); Pro-

Four of the young men at their moulding task during the Competition; (from left to right) (a) *Mr. R. Flahaut, representing France, and the winner of the Competition;* (b) *Mr. C. F. Corbett of Great Britain who was placed second;* (c) *Mr. A. de Groot (Holland) and* (d) *Mr G. Vendrame (Italy). (Mr. de Groot was unfortunate in the Competition owing to the fact that his mould collapsed.)*

Mr. De Bruin and Mr. Odoux assessing moulds during the practical test of the Competition.

fessor R. J. Sarjant, O.B.E., D.SC. (member of United Kingdom Committee); Mr. F. Shepherd, J.P. (member of United Kingdom Committee); Mr. B. H. Tripp (CFA); Mr. H. Walter; Mr. A. W. W. Watson (British Iron and Steel Federation); Mr. D. Wheatley (deputy director, City and Guilds of London Institute); Mr. H. Wilson Wiley (Clerk to Worshipful Company of Founders), and Mr. C. H. Wilson (president, IBF, and member of United Kingdom Committee).

After proposing the Loyal Toast, Dr. Dadswell introduced Mr. P. J. M. Thomas to the gathering, saying that his presence—and also that of Mr. Part—indicated not only their personal interest in technical education, but also the importance which the British Government attached to education and training. Mr. Thomas, he said, was responsible for training in the Ministry of Labour and Mr. Part was the Under-Secretary to the Ministry of Education and thus was the senior officer responsible for technical education.

Mr. Thomas's Address

Mr. Thomas then addressed the assembly, saying that he understood no fewer than 11 countries participated in the work of the European Committee of Foundry Associations and the importance which the industry in Great Britain attached to it was shown by the fact that the British Steel Founders' Association, the Council of Ironfoundry Associations, the Association of Bronze and Brass Founders and the Light Metal Founders' Association all actively supported it. He felt that one of the Association's happy inspirations had been the establishment of the international foundry apprentice competition. In addition to the spirit of friendly rivalry which they engendered between competing countries and individual firms, the competitions undoubtedly offered an opportunity to the countries participating to learn at first hand something of the training methods of other countries and perhaps thereby to discover scope for change or

View of a Competition casting, indicating, fairly well, the degree of complexity of the job.

Mr. P. J. M. Thomas, Parliamentary Secretary to the Ministry of Labour, addressing the gathering in the Tallow Chandlers' Hall before the prize-giving. In the chair is Dr. C. J. Dadswell (director, English Steel Corporation), chairman of the UK organizing committee.

even improvement in their own training arrangements.

In the United Kingdom, Mr. Thomas continued, traditional apprenticeship schemes provided the framework for training for skilled crafts. The responsibility of working out and administering schemes of training rested with the two sides of the industries concerned, and the training was given to boys engaged by individual firms as apprentices. The Government, on its side, provided facilities for the general and technical education of apprentices—this made up the British national pattern. It was an arrangement that had proved its worth over the years by its capacity for change and adjustment, a capacity which would be needed perhaps in larger measure in the future.

Mr. Thomas then went on to say that arrangements for apprentices in the UK differed from those in France and Germany. In France, the system of *centres d'apprentissage* with set standards of training (controlled by examinations which apprentices had to pass before they could work as craftsmen) represented a different approach from this country's. In Germany, also, there was a greater measure of centralized control of training syllabuses. However, he said, he would like to assure representatives from other countries that the advantages of their systems of training were not unknown in the UK and indeed their systems or adaptations of them had advocates in Britain. Though methods varied, the underlying aims remained the same—to train craftsmen who would be an asset to the community, not merely because of their technical skill, but also as men of character and integrity. Those present he felt sure could rely on the young men who had taken part in the Competition to measure up to this exacting standard.

Future of the Industry

The future of the foundry industry lay in large measure in the hands of these young men and their fellows and Mr. Thomas stressed how important it was for Europe that the foundry industry should develop and prosper. The foundry industry, he said, provided castings for practically every need of the civilized community; there was not a machine or tool in household or workshop which could do without castings. The industry also occupied a central position in the respective national economies as one of the great consumers of raw materials and was a major customer of every country's transport system. The numerous foundries, small and large, throughout Europe provided a livelihood for a multitude of manufacturers and craftsmen and at the present time—he was pleased to add—the industry was a prosperous one. Speaking of the UK, Mr. Thomas said that order-books were full and "doors" were open for more apprentices.

Actual presentations of awards and prizes at the Tallow Chandlers' Hall by Mr. P. J. M. Thomas, M.P. The recipients (reading downwards) are:—Mr. R. Flahaut (France); Mr. C. F. Corbett and Mr. T. J. Vincent (both UK); Mr. S. I. Thornberg (Sweden) and Mr. J. M. Degueldre (France).

In to-day's complicated and rapidly-developing industrial scene, Mr. Thomas continued, one could not help but reflect on the future rôle of the skilled man. Technical changes (particularly towards automation) were likely to alter industrial methods, but he felt that in total there was a likelihood of a greater rather than a lesser need for skill. No increase in the numbers of technologists and technicians would be of value unless there were craftsmen to back them up, though their rôle might, in future, call in smaller measure for manual skills, and to a greater extent for technical knowledge, initiative and adaptability. Whatever training pattern was therefore adopted—whether it be the French, German or British systems—training for skill (and in all likelihood more of it) would continue to be needed.

All Firms must share in Effort

He thought that both quality and quantity of training must be improved. As stated earlier, the UK regarded apprenticeship schemes as the framework for training arrangements, but this meant that, in the last resort, the amount of training done and its standard depended on the sense of responsibility of individual firms. In foundries, as in other sectors of industry, the quality of training given in the country's leading firms was excellent. Here, however, as in other industries, there were some firms who failed to take their responsibility for training seriously enough and though they were employers of skilled men, they did not make a proper contribution by training towards the replenishment of the country's pool of skilled manpower.

This problem of getting more firms to pull their weight would be of crucial importance in Britain over the next two years, as the "bulge" in the number of school-leavers came into the employment field and reached its peak. No industry could have the skilled workers it would need tomorrow unless it was prepared to train them to-day. This was a matter not only of collective responsibility for the industry, but one of individual responsibility for every firm.

Training Centre Appeal

Mr. Thomas concluded by saying that he knew the Council of Ironfoundry Associations was alive to this problem and to the collective responsibilities of the industry—as was shown by the decision to rebuild and expand the National Foundry Craft Training Centre at West Bromwich. He understood that an appeal had just gone out to industry for funds for this purpose,* and he felt sure that individual firms would meet their responsibilities by responding generously to the appeal and, where necessary, by weighing carefully their own efforts in the training field and considering whether there was not more scope for them to increase their investment in the future.

(Following the conclusion of Mr. Thomas's address, Mr. F. C. Hayes translated it first into French and then into German, and performed this service also with all the subsequent speeches of the evening.) It was at this stage in the proceedings that the awards, referred to earlier, were presented by Mr. Thomas who congratulated each successful competitor in turn.

Winning French team—Mr. Flahaut (carrying the trophy), Mr. Degueldre and Mr. Chandelier—with (in front) Mr. D. Waeles and Dr. C. J. Dadswell.

"The Guests"

Dr. Dadswell then proposed the toast to "The Guests." During the course of his remarks, he said that one of the pleasing features of being associated with the foundry industry was that it gave one the opportunity of meeting people with a common interest. Those present who were inside the foundry industry, he continued, were enthusiasts for a very ancient craft and, nowadays, foundrymen were enthusiasts also for blending a fine craft with applied science. The week's Competition was a happy augury for the future and the 17 competitors from eight countries symbolized the future craftsmen, technicians, and possible technologists and managers of foundries in the future.

Dr. Dadswell next thanked Mr. Thomas for his address and for presenting the awards, and also thanked Mr. Part for his interest. He then welcomed the other guests, saying it was not possible to refer to them all by name, but he felt he ought to mention the fact that Dr. Weinberger (president of the European Committee of Foundry Associations) had been unfortunately prevented from attending owing to illness.

Thanks were also recorded to the judges who had worked so hard over the past week, to F. H. Lloyd & Company, Limited, who had placed at the young men's disposal their excellent apprentice training workshop and had helped by loaning personnel to

*See page 713 of June 9 issue of the JOURNAL and also last week's leading article.

Commemorative plaque in cast bronze presented by the Worshipful Company of Founders to each of the seventeen competitors.

give assistance during the practical tests. The National Foundry College were due for praise for all the facilities placed at the disposal of the competitors—accommodation for the written examinations and housing of the young men at Tor Lodge. Thanks were also given to the Morgan Crucible Company, Limited, for the loan of a non-ferrous melting furnace; to Shell-Mex & B.P., Limited, for the gift of fuel oil; to Stanton Ironworks Company, Limited, for foundry equipment and technical preparation; to Trent Foundries, Limited, for foundry equipment and particularly to Mr. Charsley who had been responsible for the making of the bronze plaques; to B. Levy & Company (Patterns), Limited, for the preparation of the pattern drawings; (Dr. Dadswell's own firm—English Steel Castings Corporation, Limited—made all the patterns); to Sterling Foundry Specialties, Limited, for a very liberal concession in the supply of moulding boxes; to the British Cast Iron Research Association for the photographic records and to Le Grand Western Foundries, Limited for the trophy case. Finally Dr. Dadswell said he hoped he had not omitted to mention any other organization who had given support and thanked the CFA, ABBF and BSFA for their assistance in the way of finance, and also the Worshipful Company of Tallow Chandlers for their hospitality that evening.

Mr. L. Frede, from Germany, responded briefly on behalf of the guests, saying how greatly all had admired the Competition arrangements and how appreciative they were for the hospitality dispensed. He felt sure those taking part in the Competition, in whatever capacity, had had a most enjoyable and interesting week.

Tallow Chandlers' Hall

For the interest of both home and overseas readers, it is worth mention that the Hall in which the closing ceremony and dinner took place (by courtesy of the Worshipful Company of Tallow Chandlers), is the centre of one of London's oldest and most famous City Companies. This Company is one of the many which represent the trades and crafts of the capital city and once wielded complete authority over them. The "Tallow Chandler" was the candlemaker of the time; in days of rudimentary lighting, his importance is easy to appreciate. The earliest known reference

(*Continued on p. 762, col. 1*)

All the seventeen apprentices who participated in the Competition photographed with Dr. Dadswell after the presentation of the awards.

Progress from . . .

. . . Ornament to Utility

Concluding Accounts of Works to be visited during the IBF Malvern Conference Week

(Continued from page 726)

In the last two issues of the JOURNAL, accounts were printed of nine Midland works which are receiving parties of members of the Institute of British Foundrymen as part of the Malvern Conference programme. Descriptions of the remaining six establishments which are offering hospitality conclude the series. These, too, well justify the general title of the article which was intended to draw attention to the change in the Midlands output over the years, from smallwares manufacture to to-day's very substantial contribution to the country's industrial economy.

Humber, Limited

The first casting produced in the foundry of Humber, Limited, Coventry, was in January, 1914. The manufacture of both ferrous and non-ferrous castings, by skilled workers with a minimum of mechanical assistance, continued until 1943, when the present mechanized foundry was inaugurated. Present-day output is confined entirely to grey iron at 270 fettled tons per week; this represents 17,000 castings for the company's light-car range, including cylinder-blocks, cylinder-heads, brake drums and flywheels.

Control and Analysis

The demand for accurate castings has, during the last decade, been further increased by the introduction of transfer machining operations. To meet this demand, attention in the foundry has been concentrated on control of materials, casting and moulding techniques, coremaking and sizing, flash, draught angles, and the design of pattern equipment. Guaranteed locations for initial machining operations are as cast. Control and analysis of raw and processed materials is essential to a mechanized foundry with a high rate of productivity. Attached to the foundry, therefore, is a fully-equipped laboratory for sand testing and metallurgical analysis. Checks are made hourly of moulding and core sand to ensure that specified standards are maintained and chill wedge tests are taken from every ladle of metal tapped from the cupolas. Carbon and silicon analysis is taken hourly and complete analysis and tensile tests are made several times per day.

Melting and Coremaking

Metal is melted in conventional cold-blast cupolas, of which there are four. Each is fitted with wet-type spark-arresters (Fig. 1) and are of 5½ tons per hr. capacity. The cupolas are operated in pairs on alternate days—maintenance and repair being carried out on the unworked pair. Metal is tapped into geared crane ladles of 10-cwt. capacity and poured directly into cylinder moulds—for all

FIG. 1.—*Wet-type spark-arresters fitted to the battery of four 5½-tons per hr. cold-blast cupolas at Humber, Limited. Note the relative simplicity, and the convenience of having a "catwalk" immediately adjacent.*

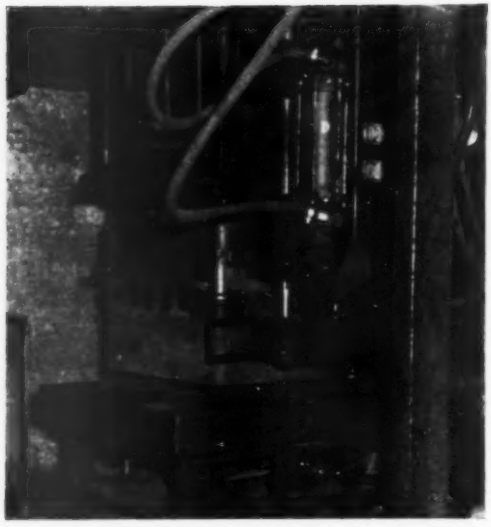


FIG. 2.—*Automatic shakeout unit, in which the mould is picked up from the pallet conveyor, the sand vibrated free, the casting ejected and positioned for transfer to the cooling conveyor, and the empty box-parts returned (Humber, Limited).*

other castings, it is transferred to 1½-cwt. hand shank ladles. All cores are made in oil sand, the bulk being blown on machines. Conveyors are used extensively for progressing green and cured cores throughout all stages of manufacture and delivery to the moulding plants. Handling of heavy core-boxes is facilitated by the use of stripping machines, transfer trolleys, roller-track surrounds and roller tables on blowing machines. A number of cores are dressed to specific dimensions, light cores being dressed in fixtures by hand operation. Bulky cores are ground to size on a core grinding machine where cores placed in fixtures mounted on a slow revolving table pass under a grinding wheel. With the exception of two cylinder-block water-jacket cores, core assembly is carried out in the moulds on pallet conveyors with the aid of jigs. To adhere to the close tolerance called for on the cylinder-head drawing, a cast-iron grid is placed in the combustion core to minimize distortion during curing and casting.

FIG. 3.—*Valve body and component parts produced in Monel metal by Charles Carr, Limited. The bore is 6 in., flanged dia. 12 in., body length 18 in., and weight (complete) 1¼ cwt.*

Moulding and Fettling

Moulding is carried out on two independent plants, each with its own continuous sand system and pallet mould conveyor and unit green sand is used entirely. Cylinder-block moulds are made with a Sandslinger operating above a turntable upon which are mounted two sets of patterns. Both cope and drag moulds are skin dressed with refractory coating. After casting solidification, the mould is picked up from the pallet conveyor by an automatic shakeout unit (Fig. 2) which agitates the sand from the barred construction moulding boxes, ejects the casting, positions it ready for transfer to the cooling conveyor, and returns the empty boxes to the turntable. Moulds for cylinder-heads, brake drums and flywheels are made on jolt/squeeze machines. Hot castings at both shakeouts are loaded on to a common casting-cooling conveyor and after a period of five hours reach the fettling section where, on vibrating grids, they are decored and runners, feeders, risers and flash are removed. Suspended from a monorail conveyor, they pass through a continuous shotblast plant, after which they are transferred to slat conveyors which progress them to finish fettling operations carried out with portable grinders, snag grinders, pneumatic chisels, etc. Porosity testing of cylinder-blocks and cylinder-heads is carried out in conjunction with a general inspection which all castings receive before despatch to the machine-shops.

Amenities

Of the many amenities available to the worker in industry to-day, showerbaths are of particular importance to the foundry worker. The Humber foundry has two modern showerbath installations —one for males and one for females. Each installation comprises two changing rooms, both equipped with air-conditioned lockers for keeping clothes dry and fresh, and every worker is allocated two lockers. Connecting the changing rooms is the showerbath room. Attendants are employed to keep the baths clean and for distributing locker keys, towels and soap.

Training

Training in the Humber foundry plays a vital part in the group training scheme in three ways. First, foundry experience is an integral part of training given to engineering craft apprentices of all types and to technical apprentices for automobile design or production engineering careers. Basic knowledge of processes and problems in the volume production of automobile castings of consistent quality and dimension acquired in foundry coreshops and patternshops is considered essential to the company's craftsman designers and production engineers. Second, the company believes that knowledge of production methods and familiarity with components in production are necessary to servicemen, salesmen and commercial men in the industry and, therefore, foundry attachments are part of all pupilage and graduate trainees curriculum. Finally, in the successful training of the company's chemists and metallurgists to full professional level, foundry practice, foundry operation and process control, are among the main features of training and many Humber-trained men now hold senior scientific or supervisory positions as metallurgists or foundry managers.

Charles Carr, Limited

Charles Carr, Limited, originally bellfounders, have been established at Grove Lane, Smethwick, since 1864. To-day the company produces castings for the engineering industry in non-ferrous (Fig. 3) and light alloys from a few ounces to two tons in weight. The foundry itself occupies an area of approximately 30,000 sq. ft. and employs about 100 workpeople, of whom 50 are skilled and 41 are unskilled. Of the total number of employees, 27 work in the foundry, four in the coreshop, five in the dressing section (Fig. 4), six in the chill shop, eight are employed on die-casting, 18 in the machine-shop and the remainder on shell-moulding, stores, inspection and maintenance departments. Three apprentices are attached to the coreshop and sand foundry.

Various Techniques

Castings are produced by traditional methods as well as by the more recent techniques of shell-moulding, centrifugal casting, and the CO_2 Process. The alloys cast are phosphor-bronze, aluminium-bronze, high-tensile brass and Monel metal, in addition to the usual gunmetals and aluminium. Castings in Monel are produced up to 3 or 4 cwt. in weight and a speciality is made of non-sparking tools produced in the company's own aluminium-bronze alloy. Gravity-die-castings are produced in aluminium-bronze and in aluminium alloys for the motor trade and similar industries, dies being produced in the company's own tool-room at West Bromwich. Shell-moulded castings are mainly of the small water-fittings type and include small impellers and other pump-parts.

The die-casting section of the works has now been moved to other premises at Pottery Road, Smethwick—about five minutes' travel away by road from the main works.

FIG. 4.—*Portable cutting-off wheel in use for removing runners from a sizeable ring casting. Nylon-bonded flexible cut-off wheels are employed. (Charles Carr, Limited.)*

In addition to the usual equipment to be found in other foundries of this type, the centrifugal casting machine (Fig. 5) employed for bush material is manufactured by Krupp-Ardelt, Wilhelmshaven, and the shell-mould machine, which has been installed recently, is a Steloy "Shellmaster"; coreblowers of the same make are also used in the "shell" shop.

Shotton Bros., Limited

Shotton Bros. established themselves as iron-founders in 1896 at Smethwick, headed by the two brothers of the immediate past-chairman, Mr. E. R. Shotton. In 1916, they moved to a new site at Manchester Street, Oldbury, and after steady progress over a number of years, the increasing business demanded additional space and a freehold site was acquired at Halesowen.

Members of the Institute of British Foundrymen will tour the Halesowen works which was officially opened in 1958, this is of modern design and construction and occupies an area of 240 by 180 ft., plus the melting bay. All the manufacturing departments as well as the offices, amenities, and laboratory are housed in one building, and there is ample room for expansion and the present plant only occupies $\frac{1}{4}$th of the 10-acre site.

Sand Preparation

Sand is returned from the knock-out by a series of belts. First, under a magnetic separator, then

FIG. 5.—*Centrifugal machine of German design used for producing cast bushing at the works of Charles Carr, Limited.*

through a rotary screen to remove spent cores, and finally into two storage hoppers; there is a further hopper to take surplus sand. All ingredients for the moulding sand are fed on to an inclined belt; new sand by means of a rotary table, clay and pelleted pitch by two vibrators, and return sand from the storage hoppers by rotary tables. These ingredients are individually controlled by a remote timing-device and the proportions can be varied by the alterations of feed times. The inclined belt carrying these materials discharges into a skip which alternately feeds the two August Simpson sand mills. The water addition and milling time are also controlled by a remote panel and the whole sand-preparation cycle is electrically interlocked to ensure that each operation occurs in the correct sequence, and an alarm is given if for any reason, such as plant failure, the sequence of operations cannot continue. The control panel is under laboratory supervision and was specially made by Field and Grant, Limited, of Birmingham. Prepared sand is discharged into a second skip hoist then into a surge hopper, and conveyed by belt to the moulding-machine hoppers.

Coremaking

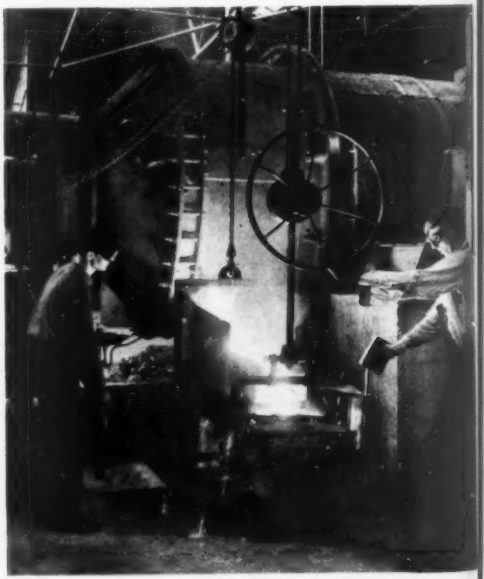
Moisture is removed from the core sand by an oil-fired rotary drier, supplied by Modern Furnaces and Stoves, Limited. The dry sand is conveyed to a pair of hoppers in the coreshop by a fan-blown closed-circuit system to ensure that no dust escapes into the atmosphere. The cereal bond and oil are added to the sand in a Polford mixer. Cores are blown by eight small Jackman machines, and then conveyed on plates by a pendulum conveyor to the vertical Acme oil-fired stove. After inspection, the cores are stored on portable racks and when required are moved the short distance to the moulding line.

Moulding and Melting

The ten moulding units are British Moulding Machine Company's BT.1 type, four making drags and four making copes with two additional machines available for pattern changes. The moulds are conveyed to the pouring area on a power-driven track and filled from covered ladles of 3-cwt. capacity suspended on a monorail.

A continuous supply of molten metal is available from three 7-ton rotary furnaces (Fig. 6) by Stein and Atkinson, Limited. These are charged through the exhaust opening from an overhead platform, the furnaces being inclined for this purpose. The weighed charge of hematite pig-iron, steel and returned scrap, is charged manually down a chute. The furnace is then returned to its normal horizontal position and fired. The fuel used for melting is a creosote pitch mixture which is circulated at a controlled pressure and temperature in a ring-main. A positive metering pump installed in each

FIG. 6.—*Taking metal in a one-man-operated pouring ladle from a 7-ton oil-fired Stein & Atkinson rotary melting furnace at Shotton Bros.' Halesowen foundry.*



branch line from the ring-main to the furnace burner controls the fuel flow, and the combustion air delivered to the burner is regulated by Foxboro Yoxall air-weight controller. Analysis of the molten metal is checked before tapping and at short intervals throughout the tap, metal temperature is also checked and maintained throughout the pouring time.

Annealing and Fettling

After knocking off runners, feeders and risers, the castings are shotblasted in a 7-ft. 6-in. diameter Tilghmans airless rotary-table machine and unloaded on to a 9-ft. dia. storage turntable. After inspection, the castings are stored in trays on roller track in the annealing area. The castings are packed into annealing cans and sealed up, and as blackheart and pearlitic malleable castings only are manufactured, no packing media is required. The 108-ft. long oil-fired continuous furnace was designed by the company's engineers. The normal annealing cycle is seven days, but this can be varied within certain limits to suit production requirements. Annealing-furnace burners use gas oil and are thermostatically controlled on a high/low principle by two twin-point recorder/controllers. Temperatures at other points along the furnace are continuously recorded. Lines of roller track serve the fettling area (Fig. 7) and grinding is done on four 20-in. double-ended machines. These are supplemented by two double-ended machines taking 6- to 12-in. wheels. Straightening operations, if necessary, are carried out by a power-driven friction press, and certain castings are also set to correct form by hand. All castings are again shotblasted in a second 7-ft. 6-in. dia. Tilghmans machine, and another turntable is used for final inspection before despatch.

Beans Industries, Limited

The foundry division of Beans Industries, Limited, Tipton, has been established for over 50 years and is now primarily concerned with the production of automobile grey-iron castings. The foundries cover an area of 150,000 sq. ft., and at the present time employ some 850 people. The foundries have a capacity in the order of 35,000 tons of finished castings per annum. Number-one foundry produces cylinder-blocks and -heads and larger types of castings up to 9 cwt. in weight (Fig. 8) and the number-two foundry makes the lighter types of automobile castings such us brake-drums, manifolds, and gearboxes (Fig. 9).

Cylinder-blocks and Heads

In the core section of the first foundry the majority of cores are produced from coreblowing machines some of which are of the semi-automatic type. The sand-drying plant here consists of two rotary sand dryers and sand coolers and has a capacity of 10 tons per hour. Mixed core sand is distributed throughout the shop by an overhead platform. Three pendulum-type conveyors transport "green" cores to vertical drying stoves and

FIG. 7.—*Row of double-ended grinders (each fitted with BCIRA-pattern exhaust systems) for fettling malleable castings at the Halesowen works. In the background is the continuous annealing furnace.*

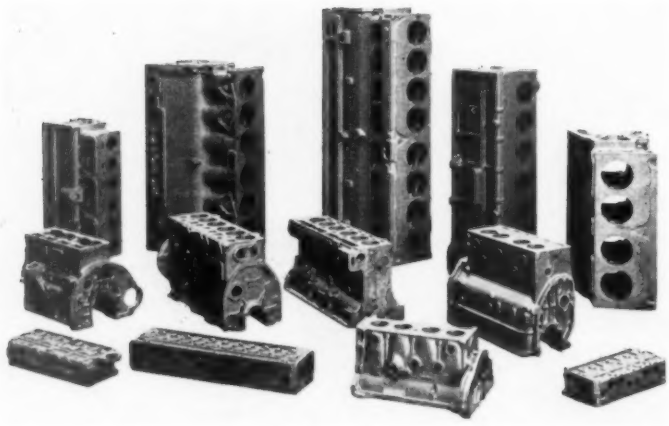


FIG. 8.—*Typical selection of cylinder-block and -head castings produced in the number-one foundry of Beans Industries, Limited.*

the baked cores to core blacking, core trimming and core assembly.

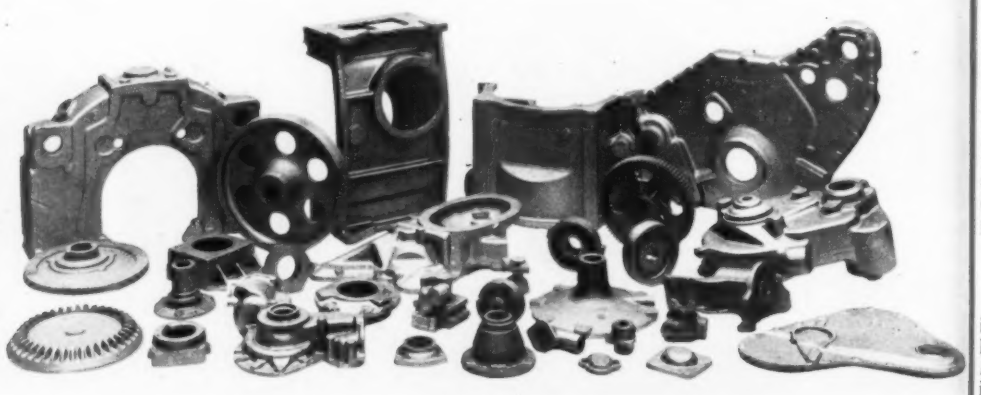
Greensand moulding is carried out on two continuous mould-conveyors and dry-sand moulds are assembled on roller conveyors. These conveyors are integrated with a common continuous conveyor which takes cast moulds to the mould knockout. A semi-synthetic type of moulding sand provides a unit sand for the production of both greensand and dry-sand moulds. This sand is processed by two continuous mills having a capacity of 60 tons per hour. Moulds are made on plain-jolt, jolt/squeeze machines and by Sandrammers. Moulds are dried in batch-type stoves. The system provides a useful flexibility of output between the continuous greensand casting lines and the batch assembly of dry-sand moulds.

All moulds in this foundry are knocked-out at a common station consisting of five separate knockout grids—the dust-extraction unit here has a capacity of 46,000 cub. ft. pe min. After removal from th moulding boxes, hot castings ar transferred to a cooling con veyor which is three quarters o a mile long and has a cooling cycle period of five hours. A the end of this conveyor th castings are off-loaded on t vibratory grids for the remova of cores, flash and runners.

The melting capacity for th number-one foundry comprises six 5-ton and tw 3-ton per hour cupolas. In this section, an overhea magnet-crane handles raw materials from th covered stockyard bay to small radially dispose bins which serve skip-chargers on each cupol Each pair of cupolas is fitted with a penthouse typ of spark-arrester.

Castings are produced to BS 1452, grades 14, 17 and 20, and close "wedge control" is carried ou on all metal poured. Castings from the core knockout station are transported to two continuou shotblast machines and the fettling shop i equipped with the usual pedestal grinders an swing-frame units. A high standard of dimensiona accuracy is maintained to meet the present-da demands of automated machining practice in th automobile industry. All castings are jig checke and the majority are subsequently pressure-tested Before despatch all castings are put through a second shotblast machine.

FIG. 9.—*Array of the smaller types of castings made by Beans Industries. These are produced by mechanized methods in the firm's number-two foundry.*



Miscellaneous Castings

The mechanized plant in the number-two foundry is a self-contained unit and moulding is carried out by eight jolt/squeeze machines—three pairs of these machines operate at any one time, while on the other pair pattern changes are being made—the operators transferring to the other machines. The total mould production runs at the rate of 250 to 300 moulds per hour from various box sizes, up to a maximum of 20 by 20 by 9 in. deep. The output in this foundry is in excess of 20 cwt. of finished castings per operator per week, believed to be well above the country's average.

The melting capacity here consists of four 3-ton per hour cupolas which are hand charged from a platform served by an overhead magnet-crane. After knockout, castings are placed in baskets on a cooling conveyor, which has a cycle time of some three hours. Castings are then taken from the cooling conveyor on to separate grids for the removal of runners and cores, etc. This cleaning platform is situate at high level in the shop and castings are then sent down to a continuous shotblast machine by a gravity chute. Castings are then processed on pedestal floor-grinders and passed through the fettling shop to inspection and despatch.

Duport Foundries, Limited

[Editor's note: As extensive alterations are in progress at Duport Foundries and it is intended to publish an extended account of these in the JOURNAL in due course, the paragraph below confines itself to a note on the chief activities undertaken and one or two of the locations of special interest to those who visit the foundry at the present time.]

Duport Foundries, Limited, situate at Dudley Port, near Tipton in South Staffordshire, are both engineers and ironfounders, specializing in the production of castings (some of them machined) for the engineering, electrical and agricultural machinery industries, etc. The visitors will see the section which concentrates on light and medium repetition castings of wide variety. Good examples of semi-mechanization and mechanical handling will be on view which are exclusively designed to deal with both large and small quantities. One section of the foundry incorporates a "Coola-Veyor" for transporting hot sand direct from the knock-out to the facing-sand mill.

The coreshop installation will be found interesting both as to the variety and the mechanization involved. In the fettling shop, there is a continuous cleaning plant designed to deal with large quantities with the minimum of labour. In addition to grey iron, spheroidal-graphite iron components are produced.

Bilston Foundries, Limited

The moulding, casting and enamelling of baths is carried on at both the Highfields and the Batmans Hill plants of Bilston Foundries, Limited. At Highfields, baths have been made since 1930 and in the foundry, a number of luxury baths are hand-moulded by highly-skilled craftsmen; others are moulded in the 'slinger section where sand is mechanically impelled into the boxes. Here, the molten iron is hand poured and the castings thus formed are shotblasted, fettled and passed to the enamelling shop for finishing in one of the 70 or so different coloured porcelain enamels.

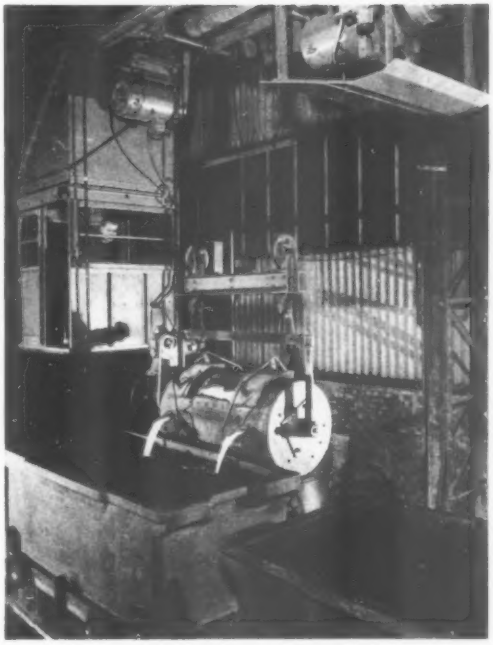


FIG. 10.—*Double pouring of a bath mould from a telpher-carried ladle, at the Batmans Hill works of Bilston Foundries, Limited.*

At Batmans Hill, moulding, pouring and knocking-out operations are fully mechanized and the plant there is designed to produce 60 baths per hour. At that works, an elaborate plant reconditions a total of 240 tons of sand per hour. The cupola chargers and stockyard are external to the main building which is 310-ft. long by 104-ft. wide with a minimum of 40 ft. to crane rails. The stockyard is spanned by a Morris overhead gantry crane of 5-tons capacity, 100-ft. span, 210-ft. travel and 40-ft. high. Pig-iron and scrap are unloaded by magnet, suspended by the crane and carried by the same method to the hoppers at the charging station, for loading the weigh-buckets of the cold-blast cupolas. Here, limestone and coke are added in carefully-weighed proportions. The two cupolas are of standard design and each can deliver up to 17 tons of metal per hour. The molten metal is retained in a gas-heated receiver of 2½-tons capacity and collected as required in a barrel-type, double-spouted ladle for pouring into the moulding boxes.

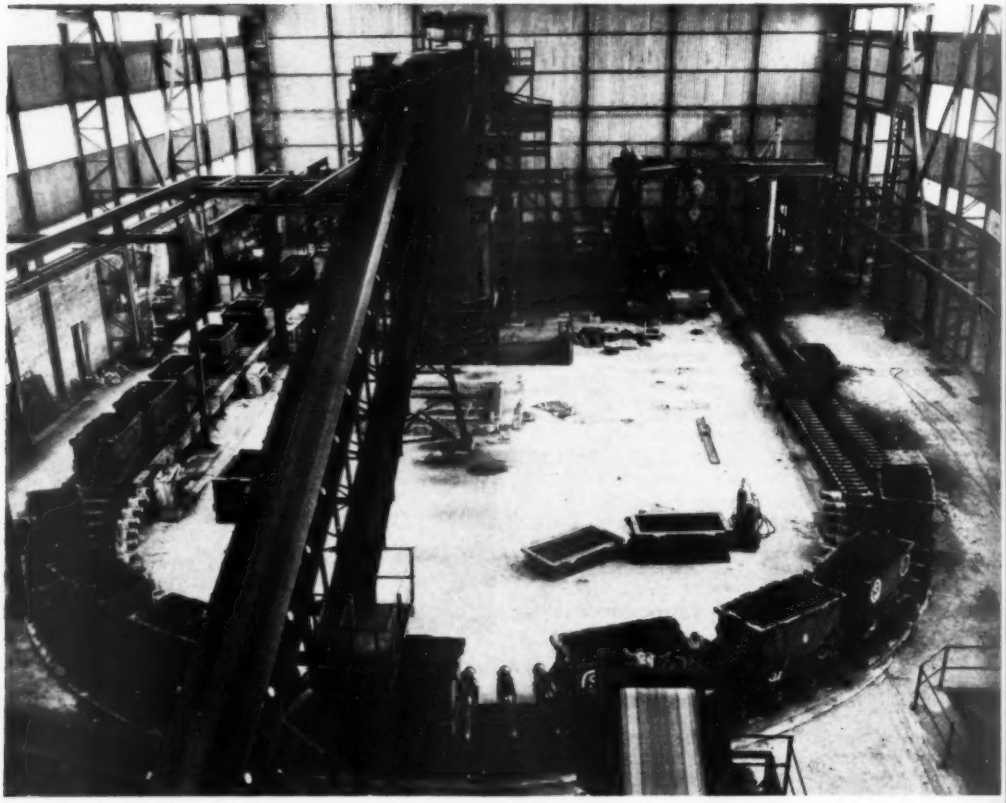


FIG. 11.—*View (taken from high up on the sand plant) of the mechanized set-up for bath production, using Pneulec Herman moulding-machines and powered-roller conveyors (Bilston Foundries, Limited).*

Sand, Moulding and Pouring

Sand, reconditioned in one of several mills, is passed by conveyor belt to hoppers over the two large Herman moulding machines where it is poured (Fig. 10) in pre-determined quantities into the moulding boxes. These are jolted and the sand consolidated by loose weights to form the sand moulds. The two halves of the moulds, one to shape the inside of the bath and the other to shape the outside are clamped together and pass (Fig. 11) over driven rollers to the pouring station, where the molten iron is delivered from the overhead ladle. The moulding box then continues along a curved roller-track to the knockout, where the half boxes are separated; the bath is removed and placed on travelling overhead hooks for conveyance to the shotblasting section. The half boxes are then vibrated to remove all adhering sand and then pass back to the moulding machine. After being shotblasted, the bath casting is fettled and wheeled into the adjoining shop for enamelling.

The foundry dates back to 1930 when it was known as the British Bath & Enamelware Company, the present company (Bilston Foundries, Limited), being formed in 1939, becoming incorporated as a public company in December, 1952. Bilston Foundries, Limited, employ about 800, including staff, maintenance engineers, patternmakers, moulders, enamellers, etc., of whom some 200 are West Indian with their own West Indian personnel manager.

In addition to baths the company makes a variety of heating appliances including the popular "Knight" fire, the "Kleenair" fire for smoke-control areas and the Bilston "30" automatic boiler. A number of engineering castings are also supplied to various well-known manufacturers throughout the country.

Mr. ALAN S. JONES has recently joined General Refractories, Limited, Sheffield, to take up the position of general sales manager.

British Electrical Power Convention

The British Electrical Power Convention, held at Bournemouth on May 30, was outstanding for the presidential address given by the Rt. Hon. the Viscount Chandos, P.C., D.S.O., M.C. His theme was "Electricity —the New Horizon" and was based on the expected increase in the standard of living. What follows is a short abstract of his speech, giving some of the salient features.

Looking back over the past 10 years, Viscount Chandos said that in 1950, the average weekly earnings of the industrial population were £6 4s. 1d. in the money of that day. They were now £11 2s. 6d. In real money, however, the rise in the standard of living amounted to about 30 per cent. This rising standard was not confined to industrial works because, in the same period, the figures of the average "disposable" income—which embraced all sectors of the paid population—increased by 25 per cent. Moreover, there was more in the rise in the standard of life than could be shown by mere figures; lying beneath the "surface" data were other factors which had a bearing. Any community which paid such huge taxes for luxuries (taxes which it could avoid by not consuming the luxuries) must *ex hypothesi* have a very high standard of life. The population in this country voluntarily paid £1,146 million in taxes on tobacco, beer and wine.

Viscount Chandos said that doubling the standard of life by 1985 was not just a "pipe-dream," but something that could well be realized, and then went on to review what this could mean in terms of industry. Broadly speaking, he said that the standard of life could not be doubled without doubling the demand for electrical energy or its equivalent, and since the present UK total inland consumption of coal was almost 200 million tons per year, it might well be imagined that 25 years hence the total would be about 400 million tons or its equivalent. In the electrical sector, the generation of Britain's public supply consumed to-day 45 million tons of coal and over 5 million coal-equivalent tons of oil per year. If the standard of life was doubled, the electrical sector would clearly be using 100 million tons of coal or coal-equivalent.

The Future

The future might well bring yet new outlets for electricity, which said Viscount Chandos he had not taken into account when talking of the 50 million extra tons needed for supply generation. Turning to the art of producing power from nuclear fission, he said this was no longer in its infancy and striking improvements had already been made in the capital cost of the new stations and more were to come. He estimated that the capital cost of the new stations would, before long, be below £100 per unit of capacity installed. Speaking of the manufacture of heavy generating-plant, he said that when he was first "in the saddle" at AEI, power companies were talking about standardizing sets mainly in two sizes—30 and 60 mw. To-day, these were regarded as very small. Twelve years' ago, the cost per unit of power installed was in the neighbourhood of £65 and it was now down to something below £39.

The increase in capacity faced the manufacturing industry with great problems. The five main manufacturers of heavy power in this country had a capacity of not less than 7,000 mw. a year. The probable demand in this country for new additions to plant for the grid might be guessed to be about 2,750 mw. a year, leaving 4,250 mw. to be exported.

Export

At this point, Viscount Chandos said it was necessary to say that the amount of power that was available for export must to some degree—or even to a large degree—depend on the development of power in what were now called underdeveloped countries. One of the greatest obstacles that this country had in the export field was an organization such as, for example, the US export/import bank. Over the last year or two, the tendency of the United States to tie credits to American manufacturers had become a significant threat to the volume of Britain's export. He believed that the principle pursued in the US was that the country placed orders with domestic manufacturers provided their prices were no more than 6 per cent., or in some cases 12 per cent. above the prices quoted by foreign companies.

Capital

Viscount Chandos said there was a general shortage of capital. On the whole, the fundamental reason was because man's ingenuity—the ingenuity of the physicist, chemist, scientist, engineer—had become so stimulated by the vast sums spent in modern industry on research and development that all over the world men's ability to turn these discoveries and new processes into production had been outrun.

Concluding his address, the lecturer said that the fact must be faced that the European Common Market was going to throw up some large industrial amalgamations which would have at hand a larger domestic market than this country could ever hope to attain. This country had to live by its brains and must always be in the van of industrial progress, yet he thought that it was true—too true—that some of the shortage of technical manpower was because it was being wasted or mis-used. For example, while recognizing that competition was a necessary ingredient of a lively economy, was it really sense that four tenders should be submitted for one nuclear power-station, at a cost perhaps of £200,000 per tender? This meant that £600,000 was wasted every time that four groups tendered for one station. Money was not the worst part of it. What was worse was that there were employed four teams of engineers of high qualification, and only one team was going to be successful. This frustration and waste of technical manpower extended far beyond nuclear power-stations, it extended to all kinds of research and development. In short, he said that mutual confidence must be built up amongst the leading manufacturers. Without undermining competition, research must be combined over a wide field.

Finally, he said that the electrical-power industry offered great opportunities to young men, and he could think of no industry which would make a greater contribution to man's control over material than the industry represented at the Convention.

Swedish Foundry Industry

Productivity in the Swedish foundry industry has shown a rapid increase over the past few years, according to a report by the Swedish Labour Market Board. In 1952 it took 71 man/hours to produce a ton of castings, by 1957 the figure had dropped to 55 hours. Output in the foundry industry rose heavily in the years immediately after the second world war and although it has continued to increase, the pace has been somewhat slower. It is said that the higher degree of mechanization is likely to reduce the number of employees by about 150 per annum over the next five years. At present there are 10,500 manual and 2,000 salaried employees in the industry; of the first total about one-third is skilled labour, but the percentage is showing a minor but gradual decline.

European Foundry Apprentice Competition

(*Continued from page 752*)

to the small community of candlemakers in the City of London appears in Corporation documents of the year 1283 and now in two years' time (1962), the Company will celebrate the 500th anniversary of its Charter of Incorporation. The Hall was damaged during the second world war and it has now been restored and the Court of the Company have plans still further to embellish it. (At the dinner table, candle-lighting was used to supplement the modern lighting and added much to the dignity of the setting for the winding up of the Competition proceedings. —EDITOR.)

The Loving Cup

The "Loving Cup," which was circulated during the dinner and proved a novel ceremonial greatly admired by the foreign guests, is usually a large silver cup containing wine or punch. At State and municipal banquets and other occasions of high dignity, the cup is passed from hand to hand in the pledging of health. The diner who drinks from the cup stands to receive it from the guest on his right, pledges the one on his left, and remains standing to guard the latter until he in turn drinks and passes the cup to his neighbour.

Conclusion

The Competition, concluded by the dinner in the Tallow Chandlers' Hall, was the third in the series—previous events being held in Germany (1957) and France (1958). The series will undoubtedly continue, the next being scheduled to be held in Germany probably in 1961. Foundrymen all over Europe hope that these Competitions will stimulate young people to consider the prospects of foundry work as a worthwhile and rewarding career. One of the most encouraging comments received on all sides about the Competition just held was the sportsmanlike way in which the young men competed. Friendships rapidly developed between the young men and they gave help to each other, regardless of personal or national advantage. It certainly revealed the intense concentration of thought and effort which is being devoted internationally on training the foundry industry's young men for the industrial needs of the '60s.

Personal

Dr. C. J. DADSWELL, B.SC., M.I.MECH.E., a director of English Steel Corporation, Limited, is now a trustee of the National Foundry Craft Training Centre.

Air Vice-Marshal Sir A. CONRAD COLLIER, K.C.B., C.B.E., has retired from the board of D. Napier & Son, Limited, aero-engine manufacturers, London, W.3.

Mr. H. P. LEE, chief engineer of the Lancashire Steel Corporation, Limited, Warrington (Lancs), has retired after nearly 50 years' service with the company.

Mr. K. A. SMITH has been appointed to the full board of Firth Cleveland Steel Strip, Limited, as production director, and Mr. D. R. MOYLAN (contracts manager) and Mr. C. D. GLADWIN (chief inspector and metallurgist) have been appointed executive directors.

Mr. R. L. ODDIE, secretary of the Brush Electrical Engineering Company, Limited, since joining the company in January 1959, has been appointed a director of the company. He retains the post of secretary. Mr. F. H. WOOD has also been appointed executive director of the company.

The Aluminium Development Association has appointed General Sir GEOFFREY BOURNE, director-general to succeed Air Commodore W. Helmore, who recently retired after 14 years as director-general of the Association. General Bourne has been ADC General to the Queen since 1959.

Mr. T. C. BAILEY, sales manager, industrial fuels, Shell-Mex & B.P., Limited, is to retire on June 30, and will be succeeded by Mr. E. RENDALL, divisional manager, north-eastern division, Leeds. Mr. A. G. SIMON, sales manager, Irish Shell, Limited, is appointed divisional manager, north-eastern division.

Mr. GEOFFREY FLATHER, an ex-Master Cutler, has been elected chairman of the Council for the Conservation of Sheffield Antiquities, in succession to Mr. RONALD E. WILSON, who is leaving Sheffield for the West of England on retirement, and has been chairman of the Council since it was founded in 1954.

Mr. ERNEST LAWTON and his wife, of Coseley, celebrated their golden wedding on June 12. Mr. Lawton, now 71, still puts in a full working week at the foundry attached to Cannon Holdings, Limited, where he has worked ever since he left school, apart from a 12-year break around the time of the first world war.

Presentation was made to Mr. JOHN FERGUSON, works manager at the Sunderland works of George Clark (Sunderland), Limited, marine engineers, on his retirement recently. Mr. Ferguson, who is 64, joined the North-Eastern Marine Engineering Company, Limited, Wallsend, as a draughtsman 40 years ago and took up his last appointment 25 years ago.

One of 12 men who received 50-year service awards of £50 tax free at W. & T. Avery, Limited, Birmingham, is a member of a family which has spent well over 200 years with the firm. He is Mr. HENRY DUNN, aged 64, whose father and brother had 45 years' service each, two nephews 30 and 25 years, and a brother-in-law, 30 years. Another 50-year-award recipient with family traditions was 65-year-old Mr. L. H. FIGURES. His father and uncle served 54 and 50 years respectively with the company.

ARMSTRONG WHITWORTH (METAL INDUSTRIES), LIMITED, announce that Mr. WILLIAM MCK. WRIGHT has been appointed resident area sales manager, Middle East. For 27 years he has lived in the Middle East, India and Pakistan. His address is:—Imm. Almawi, Rue Bliss, Ras Beirut, Beirut, Lebanon. Mr. GUY CHESHAM, formerly an official with the Machine Tools Trade Association, has been appointed special representative to the Soviet *bloc* of countries. His address is: Wien 1, An Der Hulben 1/12A, Austria.

Mr. MARIO OLIVO, the well-known Italian foundryman, has recently returned from Japan, where he has been lecturing on such topics as cupola design and control, stressing the potentialities of non-water-cooled basic-lined furnaces, which have been giving good results in Italy. The Japanese foundry technical association, which has a membership of over 4,000, has awarded honorary membership to Mr. Olivo, the first "foreigner" to be thus rewarded. He is also an honorary member of both the French and German foundry associations

British Standards Institution

Protective Gloves

A revised edition of B.S.1651, recently published by the British Standards Institution, specifies 17 types of glove for protection against industrial hazards, and a list of hazards is also given.

Materials for the gloves fall into four groups: leather, plastics, rubber and cotton. In the foreword it is stated that experiments are being carried out with new materials for gloves, and glove linings, made from man-made fabrics and mixtures of man-made fibre and cotton. Depending on the outcome of these experiments, an amendment to the standard may be issued later. Of the 17 types of glove specified in the 1950 edition one has been discarded in the 1960 publication, and is replaced by fabric-lined rubber gloves and gauntlets.

The 46-page publication specifies design particulars, size and detailed dimensions; also specified are requirements for materials and their testing. The construction of the protective gloves is fully dealt with, illustrations being used to amplify the text where necessary. Copies of the standard may be obtained from the sales branch of the Institution, 2 Park Street, London, W.1; price 10s. (postage extra to non-subscribers).

Commonwealth and Overseas Standards

The latest list of Commonwealth and Overseas Standards issued by the Institution includes an Australian standard B 8, ASA.1959 Colouring and marking of foundry patterns; 10-GP-7A Refractories, fire clay, plastic for monolithic construction and patching, a standard of Canadian origin; IS 23-59 99 per cent. primary aluminium notched bars and ingots for remelting for aircraft purposes and 1385-59 Phosphor-bronze rods, and bars, sheet and strip and wire (Indian Standards Institution). Under the American heading are listed: ASA 1959:Z 21.3b Addenda to American Standard Z 21.3-56, Z 21.3a-57, approval requirements for hotel and restaurant gas ranges and unit boilers; NBS: M228 Report of the 44th National Conference on Weights and Measures 1959; and a number of standards for aeronautical materials specifications. Two French standards are AFNOR 1959:NF A 06-594 Determination of zinc in magnesium alloys and NF A 06-595 Colorimetric determination of nickel in magnesium and its alloys. Standards DIN 1959; 1718 Copper alloys definitions, and DIN 17014 Heat-treatment of iron and steel: definition of terms, emanate from Germany. Rockwell Hardness UNI 1959:4278 which replaces UNI 3637 is an Italian standard. Numerous Yugoslavian standards for various traffic signs are also recorded. All these standards are available to members on loan and are also for sale from the sales branch of the Institution at the address quoted above.

Hadfields' Order-book shows Improvement

Since the beginning of the financial year there has been a decided improvement in the volume of orders and inquiries received by Hadfields, Limited, the Sheffield steelmakers and engineers. In view of the improved outlook, the interim dividend in respect of the year ending in September, 1960, is raised from 2 to 3 per cent. In the previous year a final dividend of 4 per cent. made 6 per cent. for the year.

The pulp and papermaking division has secured several substantial contracts which will not be completed before the end of the current trading year. Other important projects, both for home and overseas, are being negotiated.

Another Bicentenary

The year 1760 must have warranted for industry the appellation of vintage. In recent times, accounts have been published in the JOURNAL of the bi-centenaries of Taylor's bell foundry at Loughborough, Salter's of West Bromwich, Lloyd's Register of Shipping, and last year, the Carron Company. The account of another company celebrating its bicentenary, the Sheffield Smelting Company, Limited, was reported last month.

Now comes the news that during this month Spear & Jackson, Limited, Aetna Works, Savile Street, Sheffield, 4, celebrate their bi-centenary. The company makes saws and garden tools and was founded by John Love, a draper by trade. He was joined by Alexander Spear, a rich merchant of Wakefield who apprenticed his nephew, John, and it was on John Spear's shoulders that the carrying on of the business rested and he, in turn, took an apprentice. This was Samuel Jackson who soon proved his worth and by 1830 a new and lasting partnership was established.

In 1851, the company's exhibit at the Great Exhibition—a 5-ft. dia. circular saw—won a gold medal, and in the same year, John Spear died. The business was carried on by Sam Jackson, his brother Robert and his nephew. However, early in the 20th century, there were neither Spears nor Jacksons left, but the private company remained a family concern, with the controlling interest held by descendants of Samuel Jackson.

To mark its bi-centenary, the company has produced a souvenir booklet—"Tools to Trust." This gives an excellent and interesting account of the company's progress over 200 years, but, in the reviewer's opinion could have been improved by more data in tabular form, by setting out the names of the present board of directors and giving the size of the present labour force. Such information would be of real value to future historians of the company.

A.I. Conditions for Builders' Merchants

As co-operative arrangements for establishment of selling prices are now frowned upon by the authorities, Allied Ironfounders, Limited, at a meeting held at the London Hippodrome theatre, announced to a gathering of between 200 and 300 builders' merchants a new price structure for the purchase of both baths and fitted goods. The terms disclosed show substantial rebates for firms ordering large quantities—of such a scale that the smaller firms can get their supplies from the larger concerns at a price as if they ordered direct.

The conditions were disclosed in a general way by Mr. G. S. Steven, the chairman of Allied Ironfounders, and in considerable detail by Mr. H. C. Wilson-Bennetts, a managing director. The new conditions which are now operating were well received, and at a dinner held at the Mayfair Hotel, the speakers representing the merchants, headed by Sir Roger Hawkey, Bart., received general approbation.

In the writer's opinion, it is to be regretted that the new conditions (favourable though they may be) have had to be imposed. As any member of the general public only buys about one bath or other item of like nature about once in his lifetime, a few shillings either way in the purchase price are negligible in his 70-year budget. However, in this respect, the Monopolies Commission does not differentiate between goods regularly sold and those very intermittently consumed.

Equipment & Supplies

CO_2 Breakdown Agent

One of the difficulties which has prevented the wider extension and use of the CO_2/silicate process in foundries has been the problems of breakdown and sand reclamation. It is now reported that two years' research by the Distillers Company Limited, chemical division, has led to the development of a breakdown compound which, when added to the sand/silicate mixture has, it is claimed, no adverse effects on the "green" and gassed strengths and which greatly eases core and mould removal after casting. The breakdown compound—based on pelleted ammonium-chloride and added to the extent of 1 to 1½ per cent., by weight, of sand—is likely to be of particular value with metals in the higher temperature casting range. Extensive field trials are now being made at a number of steel and iron foundries and samples of the compound are being evaluated by the British Cast Iron Research Association and the British Steel Castings Research Association. The research has involved re-examination of the basic mechanism and method of the CO_2 Process and the research team expect to publish in the near future further details of the development.

Industrial Research and Development Expenditure

In a report* by the Department of Scientific and Industrial Research dealing with research and development in British manufacturing industry, it is estimated that about £300,000,000 was spent on research and development in 1958—95 per cent. of this was spent in industry's own establishments, and about 5 per cent. on payments to outside bodies (including co-operative research associations, universities, and other public and private research institutions).

Comparing these figures with 1955, the report states:

"The previous estimates related to 1955, and were made in a somewhat different way. They showed an expenditure of about £190,000,000, 3.1 per cent. of manufacturing industry's contribution to national production. The corresponding proportion for 1958 was 4.2 per cent. It would appear from these figures that research and development effort has more than kept pace with the change in the value of production, and we do not consider that this conclusion can be explained away by imperfections in the statistics. Research and development effort was expanding over a period in which the volume of production changed very little.

"In 1955 it was estimated that nearly two-thirds of expenditure on research and development in manufacturing industry's own establishments was provided out of defence contracts. In 1958 the proportion was less than half, so that expenditure on 'civil' research and development has approximately doubled between 1955 and 1958."

* Published by H.M. Stationery Office, price 1s. 3d. net.

THE LIME AND DOLOMITE PLANT at the Durgapur Steelworks, West Bengal, India, which consists of two vertical shaft lime kilns, each capable of producing 75 tons of burnt lime per day, has recently been completed and is now in operation. The plant has been constructed by Wellman Smith Owen Engineering Corporation, Limited, a member company of Iscon—the British consortium building the steelworks at Durgapur.

Law Case

Judge defers Winding-up Decision

Stating that he did not think it right at the moment to wind up the companies in view of the proposals for raising money, Mr. Justice Pennycuick in the Chancery Division adjourned for three weeks the compulsory winding-up of Wright & Platt, Limited, ironfounders, engineers' patternmakers, etc., of Edgbaston, Birmingham, and nine associated companies. The petition was presented by Barclays Bank, Limited, creditor for £106,000.

For the bank, Mr. Raymond Walton said the company had failed to comply with a demand for repayment on March 2, although the bank had been pressing for repayment since last November. The bank had heard all the promises of negotiations before. Wright & Platt was very heavily indebted. Had it been convinced the negotiations would succeed the bank would not have pressed for petitions.

Mr. Leonard Cohen, for the companies, and Mr. Reginald Dixon Weatherell, managing director of Wright & Platt and a secured creditor for £140,000, said the company had very considerable assets which substantially exceeded its liabilities. Negotiations were proceeding for a loan to the company and its subsidiary of £150,000 to be secured by a debenture. There was a very real prospect of the company raising the loan.

Apart from the bank and Mr. Weatherell there were other creditors of about £80,000, not one of whom had come to the support of the bank.

Baker Perkins' Group Acquisition

Negotiations have been completed by the Baker Perkins, Limited, group of manufacturing engineers and makers of specialist machinery for a large number of industries, of Peterborough, for the acquisition of Rownsons (Conveyors), Limited, makers of mechanical-handling equipment, of London, N.7. Rownsons (Conveyors) originated in 1909 as the enginering department of Rownson, Drew & Clydesdale, Limited, and became a wholly-owned subsidiary three years ago.

Rownsons (Conveyors) has been associated to an increasing extent with Baker Perkins during recent years. The directors of the company will be Mr. H. Crowther (chairman), Mr. C. N. Brown, Mr. A. G. Anderson, Mr. J. A. Marriott, and Mr. H. W. Gregory.

German Foundry Exhibition

The second GIFA—International Foundry Trades Fair—is also to be held in Düsseldorf, during the period September 1 to 9, 1962. GIFA is a specialised exhibition for foundrymen and makers and users of castings. The range of exhibits will chiefly comprise foundry machines and equipment, raw materials, auxiliary materials and requisites. As in 1956, when the first GIFA was held and met with considerable success, the VDG—*Verein Deutscher Giessereifachleute* (German Foundrymen's Association) will hold its annual meeting during the run of the exhibition.

OUTPUT in Hungary's foundry industry was 10 per cent. more in the first three months of this year than in the corresponding period of 1959, according to figures released in Budapest. Productivity was seven per cent. higher than in the same period last year.

News in Brief

BRITISH OXYGEN COMPANY, LIMITED, London, S.W.1, has bought Chartridge Lodge, near Chesham (Bucks), for use as a management training college.

PLANNING PERMISSION has been granted to the Metal Box Company, Limited, for a £35,000 extension to its factory which is being built in Arbroath (Angus).

NEW FACTORY, costing £200,000, is to be built on the Newburn Estate, Newcastle-upon-Tyne, by Aveling-Barford, Limited, engineers, etc., of Grantham (Lincs.).

REAY BRASS FOUNDRY, LIMITED, West Row, Stockton-on-Tees, is planning to erect a 100 by 30 ft. foundry on the Portrack Trading Estate, Stanley, Co. Durham.

UNEMPLOYMENT declined, without exception, in every industry and occupation between April 11 and May 16. At 341,176 the final figure for May 16, is more than 50,000 down on the previous month.

FIRE ARMOUR, LIMITED, makers of fire appliances and sprinkler systems of London, W.1, has joined the George Angus & Company, Limited, group, makers of similar equipment, of Newcastle-upon-Tyne.

MACHINE-TOOL sales division of S. Guiterman & Company, Limited, London, W.1, known as the Mortimer Engineering Company, Limited, has been acquired by B. Elliott & Company, Limited, machine tool manufacturers, of Cardiff.

WEST GERMAN steel production is running at a rate very close to 34,000,000 tons a year, compared with last year's production of 29,400,000 tons. Production in May was 2,860,000 tons and for the first five months of the year the total was 14,040,000 tons.

PARTICIPATION of Aluminium, Limited, of Canada in Alumino Iberico, of Spain, is to be increased to 41.07 per cent. A capital increase of 50,000,000 pesetas to 350,000,000 pesetas is planned by Iberico and the whole of this increase will be subscribed in dollars by Alcan.

GLASGOW HIGHWAYS SUB-COMMITTEE has agreed to recommend acceptance of a tender by James Howden & Company, Limited, engineers, Glasgow, for the supply of ventilation machinery for the Clyde Tunnel between Linthouse and Whiteinch. The contract is worth £250,000.

FOR the British Exhibition recently opened in New York, Tube Investments, Limited, have prepared a striking brochure for distribution to visitors to their stand. It outlines the activities of their constituent companies and has a most attractive cover in shiny blue with a pattern of ¼-in. perforations.

ENGLISH STEEL CORPORATION SPORTS CLUB organized a trip for retired employees of the firm on June 1, when 950 former employees went to Blackpool in two special trains. Many came from old folks' units in hospitals or old folks' homes and were accompanied by stewards who cared for them on the journey.

THE SHORTAGE OF SKILLED LABOUR for the foundries at Sheffield is causing much concern to the leaders of the industry who realize more skilled labour will have to be found if production is not to be threatened. Efforts have been made of late to bring in operatives from the Clyde, Motherwell and Barrow areas.

THE Wolverhampton Die Casting Company, Limited, has bought the Ludlow factory of Falk Stadelman & Company, Limited, manufacturers of lighting, heating, and cooking appliances, of Birmingham. The 25,000-sq. ft. factory is to be converted into a self-contained die-casting unit providing work for 150 people.

WHEN the base of a cupola, containing more than two tons of molten metal, broke down recently at the works of Ley's Malleable Castings Company, Limited, Derby, the molten metal which leaked out set fire to some oil nearby. Derby Fire Brigade was called and brought the fire under control by using foam. No employees were hurt.

THE BERNE UNION (*Union d'Assureurs pour les Credits Internationaux*) held its annual conference in Seville from June 4 to 9. The UK Export Credits Guarantee Department's delegation was headed by the secretary, Mr. L. J. Menzies, and that of the Trade Indemnity Company, the other UK member, by the general manager, Mr. Noel Patrick.

H. B. BARNARD AND SONS, LIMITED, a subsidiary of P. Winn (Barking), Limited, manufacturers of non-ferrous metals, etc., has disposed of its non-ferrous scrap business and of H. B. Barnard (Foundries), Limited, to the Brookside Metal Company, Limited, Watford Foundry, Herts., as from June 30, and will cease to be concerned in such business after that date.

FIRST-EVER private enterprise exhibition to be held in Moscow is to be opened at the Moscow Polytechnic by Sir Patrick Reilly, British Ambassador in Russia, on June 18. The exhibition has been organized by the Scientific Instrument Manufacturers' Association of Great Britain and over 650 scientific instruments, valued at £250,000, are being shown by the 40 exhibitors.

A SUBSTANTIAL CONTRACT for machinery cylinder components for Rolls-Royce, Limited, has been secured by Scottish Aviation, Limited, Prestwick. In addition the company's Twin Pioneer aircraft, three of which are on order for the R.A.F., is being evaluated for possible use in German civil aviation. Last year, because of shortage of orders, the company had to pay off 500 men.

A USEFUL LEAFLET, publication No. V.59(1), has been received from the Incandescent Heat Company, Limited, Smethwick, Birmingham, which details the products manufactured by the company's gas atmospheres division. These include gas absorbers, acid-fume-treatment plant, adsorption plant, air-conditioning plant, air dryers, air pre-heaters and ammonia dissociators and burners.

THE OPEL COMPANY plan to open a branch factory in Bochum, a town in the Ruhr. The plant will provide work for about 7,000 men, and it is intended to recruit labour mainly from the ranks of miners who have lost their jobs owing to the recession in the coalmining industry. Last December an almost equal number of men were laid off when three of the Bochum collieries were closed down.

A NEW COMPANY, K. A. Ballard, Limited, operating from Woodthorpe, Church Road, Worcester Park, Surrey, 'phone: DERWENT 4112, has been formed to act as engineering agents and consultants, for the petroleum, petro-chemical and chemical industries. The field of activity will embrace general fabrication for the movement and storage of fluids in these industries, including pipes, pipelines, fittings, valves, pumps and road tankers.

JOHN MCNEIL & COMPANY, LIMITED, sugar-machinery manufacturers, Glasgow, have gone into liquidation. The labour force, of about 120, has been run down gradually during the past few months, and work was stopped a few weeks ago. The firm started as a partnership, Aiken & McNeil, in 1881, and on severance of the Aiken connection operated under its present title, becoming a limited liability company just before the first world war.

News in Brief

THE RT. HON. VISCOUNT HAILSHAM, Q.C., Lord Privy Seal and Minister of Science, is to deliver the opening address at the conference on "Ergonomics in Industry" which is being organized by the Department of Scientific and Industrial Research to take place at the Connaught Rooms, Great Queen Street, London, W.C.2, from September 27 to 29. Lectures will be given by experts drawn from many industries, both nationalized and private, and the trade unions.

SHEFFIELD UNIVERSITY proposes to establish two new degrees—Bachelor of Technical Science in Refractories and Ceramics Technology, and Bachelor of Architecture. The former degree is designed to meet the growing need for technical experts in steelworks refractories as well as in the newer fields of atomic energy, rockets and other branches of high-temperature technology. Proposals for the degrees go before a special general meeting of the court at Sheffield University on June 17.

NEW COMPANY, for plant design and engineering and construction for the chemical and man-made fibres industries, has been formed by Vickers, Limited, London, S.W.1, and the German industrialist, Herr Hans J. Zimmer, of Frankfurt on Main. Vickers and Herr Zimmer will hold equal shares in the new firm, Hans J. Zimmer Aktiengesellschaft Fuer Industrieanlagenbau. They will also jointly control High Polymer and Petrochemical Engineering, Limited, London.

THE COMPTROLLER-GENERAL'S Annual Report on the work of the Patent Office in 1959 has recently been published and copies are available from HM Stationery Office, Kingsway, London, W.C.2, and branches, price 1s. 6d. (by post 1s. 8d.). The report refers to the fields in which new development has been most marked, and mention is also made of the committee which is considering the law relating to industrial designs and of international discussions in the field of industrial property.

SO THAT SHEFFIELD shift-workers may be able to get a drink when they finish work, Sheffield Trades and Labour Council has decided to ask the city's Members of Parliament to support a proposed Bill to extend licensing hours. Mr. Vernon Thornes, secretary, said, "Sheffield has a huge population of shift workers who finish work at 10 o'clock and by the law are refused the right of a pint before they go home. I think Sheffield has the strongest case in the country for an extension of hours."

HAMWORTHY ENGINEERING LIMITED, Poole, Dorset, have purchased Schieldrop and Company of Stotfold (Beds), manufacturers of industrial oil-burning equipment for kilns and furnaces. The Schieldrop company will continue to trade as a separate entity and Mr. I. P. Frost will continue as managing director. Hamworthy's role will be mainly to supply additional technical and financial support to the Schieldrop organization so that the two companies will jointly make greater progress in oil firing.

SCUNTHORPE'S FIRST SMOKE-CONTROL AREA, the Riddings estate on the southern outskirts of the town, has been approved by the Minister of Housing and Local Government. There had been objection by 320 householders at a previous public inquiry when it was claimed that Riddings was the least affected by atmospheric pollution of any area in the borough. The Council proposed to bring the order into effect on August 1, but the Minister has ruled that it be postponed until June 1961 to give householders more time to convert fireplaces.

A MEETING of the Non-Ferrous Club at the Queen's Hotel, Birmingham, on Thursday, June 10, was addressed by Mr. R. M. Drummond, M.I.MECH.E., M.I.MAR.E. Discussing the subject of "Prevention of Atmospheric Pollution" he said that a big factor in solution of the problem was the choice of apparatus to meet the various needs of the individual firm. The question of cost played a large part in this choice. A collection was taken on behalf of the National Society for the Prevention of Cruelty to Children which realized a little over £12.

SENIOR OFFICIALS of the Heavy Engineers' Union of the Soviet Union, on a visit to this country as guests of the Boilermakers' Society, visited the works of Imperial Chemical Industries, Limited, at Wilton and Billingham on June 3. The Wilton works were also visited on the same day by a party of Venezuelans who are touring Britain as guests of the Foreign Office. On the following day, the Russians were shown round the Lackenby steel works of Dorman, Long and Company, Limited, at Redcar. The executive of the Boilermakers' Society visited Russia last year.

NEW MIDLAND PULLMAN de-luxe services between Manchester/London and London/Leicester will commence operation on July 4. A train will leave Manchester Central five days a week at 8.50 a.m., pick up passengers at Cheadle Heath at 9.04 a.m. and arrive at St. Pancras at 12.03 p.m., depart from St. Pancras at 6.10 p.m., set down passengers at Cheadle Heath at 9.07 p.m. and arrive at Manchester Central at 9.21 p.m. Between London and Leicester a train will leave St. Pancras at 12.45 p.m., arrive Leicester London Road 2.10 p.m., depart Leicester 2.33 p.m. and arrive at St. Pancras at 4.00 p.m.

ROLLS-ROYCE, LIMITED, Derby, has decided to support the Voluntary Service Overseas Movement in order to encourage young employees who have just finished their apprenticeship to go overseas for a year. The movement sent the first volunteers abroad about two years ago. Rolls-Royce will nominate this year up to six young people to go abroad toward the end of July. The company will pay all travelling expenses and a fitting-out allowance. Since the young men will not be earning a normal salary, it is proposed to set aside a sum of money to help them when they return, or to make an allowance to dependants.

Obituary

Mr. SAMUEL FOX, a former chairman of Hartley & Sugden, Limited, boilermakers, Halifax, has died at the age of 90. He was president of the Institution of Heating and Ventilating Engineers in 1931, and had been a member of the Council of the Federation of British Industries.

Mr. DAVID BRUCE, a former managing director of British Polar Engines, Limited, Glasgow, has died at the age of 65. Mr. Bruce served his apprenticeship with Vickers-Armstrong Limited, Barrow-in-Furness, and worked in the drawing office of Cammell Laird & Company, Limited, Birkenhead, before joining British Polar Engines as chief draughtsman in 1928. He later became managing director and held the post for many years until 1959 when he resigned to become deputy chairman of Associated British Engineering, Limited, the parent body of the group of companies of which British Polar Engines is a member. He retired in April this year and relinquished his deputy chairmanship to become technical consultant to the group's Scottish companies.

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AP91

Company News

Davy-Ashmore, Limited

Terms of the merger between Davy-United, Limited, and Power-Gas Corporation, Limited—first announced last November—have now been published. Davy-United is to offer 17 £1 ordinary shares in exchange for every 20 10s. ordinary of Power-Gas. Davy-United—the parent company of the group—is to change its name to Davy-Ashmore, thereby continuing the name associated with the principal operating subsidiary of the Power-Gas group, Ashmore, Benson, Pease & Company, Limited.

Davy-United holders will get 55.9 per cent. of the £5,399,056 equity of the new holding company and Power-Gas holders 44.1 per cent. This division, it is stated, is based primarily on the earning power of the two groups and has been arrived at after detailed consideration of estimates of future profits of both.

The merger is also bringing larger dividends. In the case of Davy-United the dividend for the year to the end of March last is to be 22½ per cent. (against 15 per cent. in 1958-59), while Power-Gas, whose year-end is September 30, will pay a special interim of 17½ per cent. for the six months to the end of March. For 1960-61 a dividend of 25 per cent. is forecast on the shares of the new holding company.

The existing subsidiaries of the two groups will continue to operate under present managements and the name of Power-Gas Corporation will be taken by one of its operating subsidiaries. Interests of the employees of the two groups will be fully protected. The boards of both companies will strongly recommend the proposals for acceptance.

NEWALL ENGINEERING COMPANY, LIMITED—Group net profit rose to £74,917 from £62,101, for the year ended March 31, and the dividend is raised from 15 to 17½ per cent.

MASON & BURNS, LIMITED, malleable ironfounders, etc., of Walsall—A profits recovery and doubled dividend of 20 per cent. is announced. Net profit for the year to March 31, 1960, was £10,197 (£4,835), after tax of £9,050 (£4,450).

HAMMOND LANE FOUNDRY COMPANY, LIMITED—Turnover increased substantially and the final dividend on the ordinary capital of 12½ (10) per cent. brings the total to 17½ (15) per cent. Net profit for the year to March 31, 1960, increased to £38,246 (£31,662).

SPECIALLOID, LIMITED, manufacturers of pistons, piston rings, and gudgeon pins, of Hunslet, Leeds—Net profit rose from £26,259 to £45,464, after tax of £44,412 (£28,885). The dividend for the year ended April 2, 1960, is raised by 5 per cent. to 20 per cent.

LAPORTE INDUSTRIES, LIMITED—Final dividend of 7½ per cent. as forecast on capital increased by a one-for-five scrip issue, makes a total equivalent to 10 per cent. on the increased capital for the year to March 31, 1960. Group net profit rose to £1,808,096 (£1,003,738), after tax of £1,339,847 (£809,640).

W. & T. AVERY, LIMITED, manufacturers of weighing, counting and testing machines, of Birmingham—The final dividend of 10 (same) per cent. for the year to March 31, 1960, and a 5 per cent. bonus makes 20 (15) per cent. Group net profit rose from £1,147,598 to £1,472,033, after tax of £1,157,611 (£999,721).

W. H. ALLEN SONS & COMPANY, LIMITED, mechanical, hydraulic, and electrical engineers, etc., of Bedford—Effective dividend total is being raised to 14 (12) per cent. for 1959, with a final of 11½ per cent. A proposed one-for-two scrip issue is also announced. Net profit, after tax of £412,000, declined from £513,760 to £491,630.

ELLIOTT-AUTOMATION, LIMITED—Investment of "substantial further sums" on plant and buildings in the current year is envisaged, states the chairman, Mr. R. E. F. de Trafford. Group net profit, before tax, for 1959, at £1,015,630 (£818,352) exceeded £1,000,000 for the first time, mainly attributable to a substantial rise in turnover and to improved efficiency.

TIPPER INDUSTRIES, LIMITED, malleable and grey-iron founders, etc., of Birmingham—Dividend of 25 per cent. for 1959 is maintained with a final of 17½ per cent. It is proposed to capitalize £150,000 of reserves in a one-for-one scrip issue, and to increase the capital to £400,000 by the creation of 1,000,000 shares of 5s. Group net profit increased from £44,718 to £57,574.

MORGAN CRUCIBLE COMPANY, LIMITED—Less-tax dividend is being raised from the equivalent of 8.57 per cent. to 13 per cent. for the year to April 3, 1960, with a final of 8 per cent. For 1958-59 a capital profit distribution of 1¼ per cent. was also paid prior to the 40 per cent. scrip issue. Group net profit, after tax of £936,159, expanded from £873,311 to £1,140,929.

S. RUSSELL & SONS, LIMITED, ironfounders, mechanical and structural engineers, of Leicester—Final dividend is 10 per cent. against a forecast of not less than 7½ per cent. at the time of the one-for-one scrip issue in February. The total equivalent for the year ended March 31, 1960, is 12½ per cent. compared with 8¼ per cent. previously. Net profit rose from £62,122 to £86,192, after tax of £71,897 (£43,778).

MINERALS SEPARATION, LIMITED, London, E.C.4—Final dividend of 8d. is to be paid, making 1s. per 5s. stock unit for 1959, on capital increased to £2,000,000 by three-for-22 rights and subsequent three-for-five scrip issues, compared with a previous equivalent total, adjusting for the capitalization, of 11¼d. It is proposed to raise £1,000,000 of new capital by a one-for-four rights issue of 2,000,000 5s. shares at 10s. a share. Group net profits expanded from £312,865 to £469,446.

SIEBE, GORMAN & COMPANY, LIMITED, manufacturers of breathing apparatus, etc., of Chessington (Surrey)—The chairman, Sir Robert Davis, states that due mainly to lack of new work for the Government net profits fell from £111,842 to £83,039 in 1959. Substantial export orders had not yet been placed, but in the first three months of this year home and export sales were up by 10 and 5 per cent. respectively compared with 1959. The dividend is maintained at 20 per cent.

Carron Company's offer to B.M.C.

An offer has been made to the British Motor Corporation, Limited, by the Carron Company, ironfounders and engineers, of Falkirk, to lay down a new foundry for the production of castings for the tractors and other motor vehicles to be made at Bathgate. The foundry would be built adjoining Carron's present factory and would cost about £2,000,000. No decision has yet been taken by BMC on the proposition.

This offer follows the recent announcement that the company had received what is believed to be the largest single contract in its 200 years' existence. Over a period of about two years it is to supply 15,000 tons of castings for the second Clyde tunnel between Linthouse and Whiteinch. A company official said that no increases in the labour force would be required, but the contract was a very important one. The price was not disclosed.

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Raw Material Markets

Iron and Steel

The shortage of suitable labour is still the only factor affecting the output of most ironfoundries. A good level is maintained and, except for the domestic utensil trade where demand for castings has slackened off, most plants are kept busy. In raw materials, too, the foundries find little or no difficulty in obtaining quick dispatch of all their requirements.

Prominent among the needs of the ironfoundries for pig-iron are the low phosphorus irons used in the engineering and speciality foundries for the production of high quality castings. Generally there is no shortage of this iron but temporary scarcities do crop up for particular brands. Hematite pig-iron is plentiful as are the refined irons. No scarcity is reported in the supply of high phosphorus iron, required mostly by the light, jobbing, and textile foundries.

The steelworks continue to take up all available supplies of basic pig-iron and the proportion of furnaces producing this particular grade is well over half and represents the major percentage of the total overall output of pig-iron.

Business is good at the majority of the engineering and speciality foundries and there is yet to be seen a slackening in the demand by the motor vehicle industry. Similarly large quantities of castings continue to be needed by the heavy engineering and machine-tool trades and power and electrical plant manufacturers. The building trades appear to have recovered from the slight recession earlier in the year and maintain a fairly good call for light castings. Jobbing and textile foundries are fairly well employed.

From one source or another the foundries continue to obtain sufficient scrap for their needs and as usual there is no difficulty in getting delivery of foundry coke, limestone, and firebricks.

The months ahead look like being busy ones for the re-rollers who report no diminution in the orders on hand. The situation has now arrived when only extended delivery can be given for orders for small bars, light sections, and reinforcing rods. Here, too, labour problems are causing some interference with outputs which could be stepped up if the skilled men were available.

To satisfy their requirements the re-rollers are depending to a growing extent on consignments of imported billets. That is not to say that there has been any falling off in home supplies. In fact deliveries from UK steelworks have improved but the re-rollers show no signs of satiety as yet. There is also plentiful call for arisings of suitable re-rolling defectives and crops.

Non-ferrous Metals

Copper in London is quiet but firm with the backwardation tending to widen. Demand is reasonably satisfactory and stocks, which rose to 3,363 tons by the end of last week, are adequate. The only outside factor of importance is the uncertainty regarding the future of the Belgian Congo after it becomes independent at the end of this month.

There are no special features to report in the US market where the price of 33 cents a pound still stands for both producers and custom smelters. There was a flicker of interest last week when the US custom smelters, who have been reporting trade as slow, denied that a price reduction was imminent.

Tin is patchy with the price in London showing relatively wide fluctuations. Demand is satisfactory in London but this is attributed mainly to dealers covering bear positions. Nevertheless, consumer interest on the Continent has improved and the same comment applies to the US market where the price is over $1.01 cents a pound.

Lead is quiet in London and with the market subject to some selling pressure, prices have drifted downwards. The US market is quiet and the price is unchanged at 12 cents a pound.

Zinc in London has also been subjected to some selling pressure and the price is hovering around £90 a ton. The US market is also quiet and featureless and the price is unchanged at 13 cents a pound.

Birthday Honours

Figuring in the Birthday Honours List last week-end were many men and women in the spheres of industry and commerce, a number of whom are prominent in the foundry, iron and steel and kindred trades. Brief notes on some of the principal awards are given below; a further list will be published in next week's issue of the JOURNAL.

VISCOUNT

Field Marshal Sir WILLIAM SLIM, a director of companies, and lately Governor-General of Australia.

BARON

Mr. BASIL SANDERSON, chairman of Shaw Savill & Albion Company, Limited, and other shipping companies, and a director of the Bank of England, the Finance Corporation for Industry, Limited, the Ford Motor Company, Limited, Furness, Withy & Company, Limited, and George Thompson & Company, Limited.

KNIGHT BACHELOR

Mr. WILLIAM HUNTER MCFADZEAN, chairman of British Insulated Callender's Cables, Limited, and president of the Federation of British Industries. Mr. McFadzean was appointed to the board of BICC in 1945 and was elected chairman in 1952. He is also chairman of British Copper Refiners, Limited.

ORDER OF THE BATH

CB

Mr. OWEN FRANCIS, Under-Secretary, Ministry of Power.

ORDER OF ST. MICHAEL AND ST. GEORGE

CMG

Mr. ARTHUR FRANKLYN WILLIAMS, Assistant Secretary, Ministry of Power.

ORDER OF THE BRITISH EMPIRE

Civil Division

CBE

Mr. THOMAS EDWARD ALLIBONE, director of the research laboratory of Associated Electrical Industries, Limited, Aldermaston, and a director of Siemens Edison Swan, Limited, member of the council of the British Electrical and Allied Industries Research Association, member of the industrial grants committee of the Department of Scientific and Industrial Research, and of the DSIR Mechanical Engineering Research Laboratory Board.

Mr. ERNEST JOHN HUNTER, chairman of Swan, Hunter & Wigham Richardson, shipbuilders, etc., of Wallsend-on-Tyne, and a director of the Glasgow Iron & Steel Company, Limited, Barclay Curle & Company, Limited, Wallsend Slipway & Engineering Company, Limited, and a number of other companies and a director of the British Shipbuilding Research Association.

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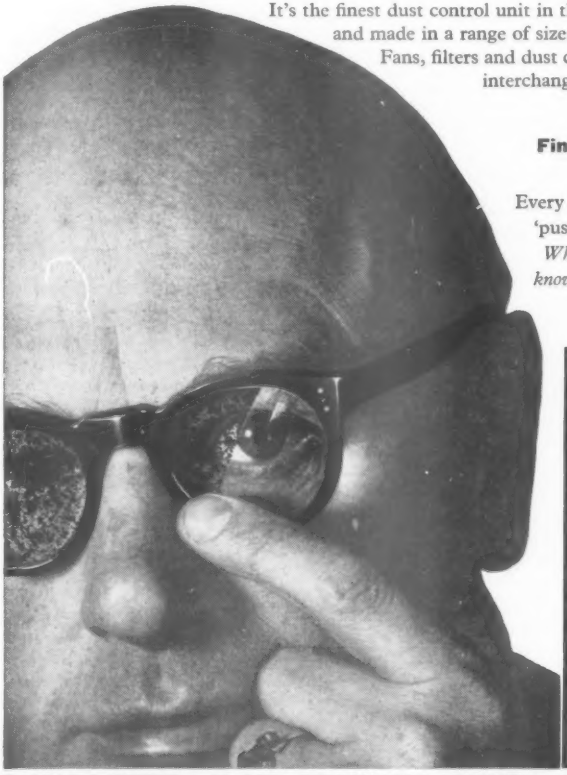

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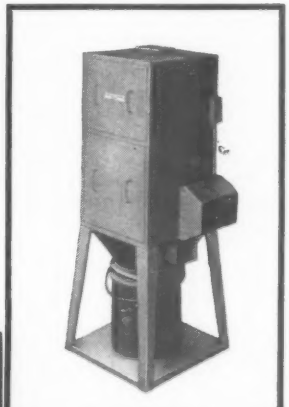

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Current Prices of Iron, Steel, and Non-ferrous Metals

(Delivered unless otherwise stated)

June 15, 1960

PIG-IRON

Foundry Iron.—No. 3 IRON, CLASS 2, 10-ton lots or over: Middlesbrough, £21 6s. 0d.; Birmingham, £20 18s. 3d.

Low-phosphorus Iron.—Over 0.10 to 0.40 per cent. P, 10-ton lots or over, £23 5s. 0d., delivered Birmingham, £23 10s. 0d., delivered Grangemouth.

Cylinder and Refined Irons.—North Zone, £25 6s. 6d.; South Zone, £25 9s. 0d.

Refined Malleable.—P, 0.10 per cent. max.; North Zone, £26 6s. 6d.; South Zone, £26 9s. 0d.

Hematite.—Si up to 2 per cent., S. & P. over 0.03 to 0.05 per cent., 10-ton lots or over: N.-E. of England (local iron), £23 19s. 0d.; Scotland (Scotch iron), Zone S.1, £24 5s. 6d.; Sheffield, £25 7s. 6d.; Birmingham, £25 14s. 0d.; Wales (Welsh iron), £23 19s. 0d.

Basic Pig-iron.—£20 3s. 0d., delivered Staffs, Derbyshire, Notts, Lincs, Rutland, Northants, and Leicestershire in 10-ton lots or over.

FERRO-ALLOYS

(Per ton unless otherwise stated, delivered)

Ferro-silicon (6-ton lots and over).—45 per cent. Si, £42 10s. 0d. to £44 10s. 0d., scale 15s. 0d. per unit, lumpy; 75 per cent. Si, £57 15s. 0d. to £61 10s. 0d., scale 15s. 0d. per unit, lumpy.

Ferro-vanadium.—50/60 per cent., 20s. 6d. per lb. of V.

Ferro-molybdenum.—65/70 per cent., carbon-free, 12s. 10d. per lb. of Mo.

Ferro-titanium.—20/25 per cent., 2-3 per cent. Cu, £250 0s. 0d.; 38/40 per cent., commercially carbon-free, £287 0s. 0d.

Ferro-tungsten.—80/85 per cent., 12s. 1d. per lb. of W.

Tungsten Metal Powder.—98/99 per cent., 15s. 1d. per lb. of W.

Ferro-chrome (6-ton lots and over, lumpy).—4/6 per cent. C, £80 10s. 0d. to £84 10s. 0d., basis 60 per cent. Cr. scale 27s. 0d. to 28s. 6d. per unit; over 6 per cent. C, £79 0s. 0d. to £82 10s. 0d., basis 60 per cent. Cr, scale, 27s. 0d. to 28s. 6d. per unit; 2 per cent. C,* 1s. 8d. to 1s. 11d. per lb. Cr; 1 per cent, C,* 1s. 8½d. to 1s. 11½d. per lb. Cr; 0.15 per cent. C,* 1s. 9½d. to 2s. 0½d. per lb. Cr; 0.10 per cent C,* 1s. 9½d. to 2s. 0½d. per lb. Cr; 0.06 per cent. C,* 1s. 10½d. to 2s. 1d. per lb. Cr.

Metallic Chromium.—98/99 per cent., 6s. 10d. per lb.

Metallic Manganese.—94/96 per cent., carbon-free, £275 0s. 0d.; 9 6/98 per cent., £285 0s. 0d.

Ferro-columbium.—65/67 per cent., Cb + Ta, 19s. 9d. per lb., Cb + Ta.

Ferro-manganese (Standard).—78 per cent., £61 10s. 0d.

SEMI-FINISHED STEEL

Re-rolling Billets, Blooms, and Slabs.—BASIC: Soft u.t., 100 tons & over, £31 15s. 6d.; tested, 0.08 to 0.33 per cent. C, 6 to 35 tons, £33 15s. 6d.; hard (0.41 to 0.60 per cent. C), under 10 tons, £34 17s. 0d.; silico-manganese, under 10 tons, £43 16s. 6d.; free-cutting, under 10 tons, £36 14s. 6d. SIEMENS MARTIN ACID (under 10 tons): Up to 0.25 per cent. C, £41 1s. 0d.; silico-manganese, £44 4s. 0d.

Billets, Blooms, and Slabs for Forging and for Stamping (under 10 tons).—Basic, soft, up to 0.33 per cent. C, £38 10s. 0d.; basic, hard, over 0.41 up to 0.60 per cent. C, £39 12s. 6d.; acid, up to 0.25 per cent. C, £43 4s. 0d.

* Average 68-70 per cent.

FINISHED STEEL

Heavy Plates and Sections (1 ton to 10 tons).—Ship plates (N.-E. Coast), £41 12s. 0d.; boiler plates (N.-E. Coast), £44 2s. 0d.; floor plates (N.-E. Coast), £43 10s. 0d.; angles (N.-E. Coast), £38 16s. 6d.; joists (N.-E. Coast), £38 12s. 6d.

Small Bars, Sheets, etc.—Rounds and squares, under 3 in., and flats 5 in. wide and under, untested soft basic, 50 tons and over, £39 1s. 0d.; under 10 tons to 4 tons, £40 18s. 0d.; under 4 tons to 2 tons, £41 3s. 0d.; hoop and strip, coils, 100 tons and over, £38 0s. 0d.; uncoated strip mill coils, hot rolled, under 3 mm. to 12g., 25 tons to under 50 tons, £43 16s. 0d.; black sheets (hand mill), 24g., 10 tons and over, £57 14s. 6d.; galvanized corrugated sheets, 24g., 10 tons and over, £68 5s. 0d.

Alloy Steel Bars.—1 in. dia. and up: Nickel, £67 17s. 0d.; nickel-chrome, £98 11s. 0d.; nickel-chrome-molybdenum £111 4s. 0d., in lots of 5 tons to under 10 tons.

NON-FERROUS METALS

Copper.—Cash, £250 10s. 0d. to £251 0s. 0d.; three months, £244 15s. 0d. to £245 0s. 0d.; settlement, £251 0s. 0d.

Copper, Tubes, etc.—Solid-drawn tubes, 2s. 4½d. per lb.; rods, 260s. 6d. per cwt. basis; 20 s.w.g., 295s. 6d. per cwt.

Tin.—Cash, £793 10s. 0d. to £794 0s. 0d.; three months, £789 0s. 0d. to £790 0s. 0d.; settlement, £794 0s. 0d.

Lead (Refined Pig).—Second half June, £72 15s. 0d. to £73 0s. 0d.; second half September, £74 0s. 0d. to £74 2s. 6d.

Zinc.—Second half June, £89 15s. 0d. to £90 0s. 0d.; second half September, £90 0s. 0d. to £90 5s. 0d.

Zinc Sheets, etc.—Sheets, 15g. and thicker, all English destinations, £126 0s. 0d.; rolled zinc (boiler plates), all English destinations, £123 15s. 0d.; zinc oxide (Red Seal), d/d buyers' premises, £105 0s. 0d.

Brass Tubes, etc.—Solid-drawn tubes, 1s. 11½d. per lb.; sheets to 10 w.g., 214s. 9d. per cwt.; wire, 2s. 9⅝d.; rolled metal, 214s. 9d. per cwt.

Brass (Brazing).—BS1400, B3, £173; B6, £225.

Brass (High Tensile).—BS1400, HTB1, £201; HTB2, £221; HTB3, £233.

Gunmetal.—BS1400, LG2, £220; LG3, £230; G1, 1%, £281; G1, 1%, £268.

Phosphor Bronze.—BS1400, PB1 (AID released), £312; BS1400, 90/10/1, £298.

Leaded Phosphor Bronze.—BS1400, LPB1, £238.

Phosphor Bronze Strip, etc.—Strip, 303s. 3d. per cwt.; wire, 4s. 2½d. per lb.; rods, 3s. 5½d.; tubes, 3s. 5½d.; chill cast bars, solids 3s. 4¾d.; cored 3s. 5¾d. (CHARLES CLIFFORD, LIMITED).

Nickel Silver, etc.—Rolled metal, 3 in. to 9 in. wide × 0.056, 3s. 11½d. per lb.; round wire, 10g. in coils (10 per cent.), 4s. 4½d.; special quality turning rod, 10 per cent., ½ in. dia., in straight lengths, 4s. 3½d. All prices are net.

Other Metals.—Magnesium, ingots, 2s. 2½d. to 2s. 3d. per lb. Antimony, English, 99 per cent., £190 0s. 0d. Quicksilver, ex-warehouse, £70 0s. 0d. to £70 10s. 0d. Nickel, £600 0s. 0d. Aluminium ingots, £186 0s. 0d.; aluminium bronze (BS1400), AB1, £258, AB2, £267.

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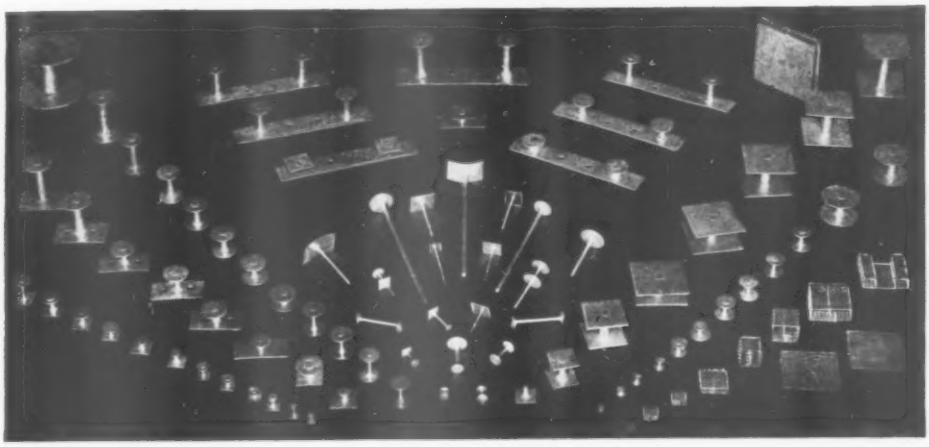

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Imports and Exports of Iron and Steel in April

The following tables, based on Board of Trade returns, give figures of imports and exports of iron and steel in April this year. Totals for the first four months of this year and last are also included.

Total Exports of Iron and Steel

Destination.	Month ended April 30.	Four months ended April 30.	
	1960.	1959.	1960.
	Tons.	Tons.	Tons.
Cyprus	154	532	580
Sierra Leone	634	2,028	1,879
Ghana	1,884	10,464	7,799
Nigeria	5,053	25,773	22,587
Union of South Africa	7,063	18,085	25,080
Rhodesia and Nyasaland	1,530	6,901	7,150
Tanganyika	567	7,083	2,951
Kenya	2,255	8,538	7,173
Uganda	127	2,466	548
Mauritius	242	503	1,425
Aden	175	853	637
Bahrein, Qatar, and Trucial States	1,129	3,321	6,078
Kuwait	583	5,183	1,978
India	19,031	55,973	89,905
Pakistan	5,957	12,694	25,578
Singapore	1,292	8,477	5,623
Malaya	2,038	4,186	6,662
Ceylon	1,913	15,975	16,895
British North Borneo	195	694	1,477
Hongkong	4,886	22,325	22,887
Australia	15,088	31,598	56,791
New Zealand	7,012	31,486	31,563
Canada	22,934	40,589	78,301
Jamaica	2,441	6,991	9,410
Trinidad	4,815	13,253	16,714
British Guiana	776	2,085	2,692
Other Commonwealth countries	3,811	13,707	13,461
Eire	4,865	15,290	20,562
Soviet Union	2,415	532	9,616
Finland	5,697	9,477	14,725
Sweden	15,152	41,055	72,154
Norway	9,356	31,773	45,010
Denmark	9,544	29,695	36,505
Western Germany	12,165	36,722	61,216
Netherlands	8,928	24,942	46,866
Belgium	2,206	9,494	12,537
France	456	849	2,701
Switzerland	1,163	2,847	4,259
Portugal	1,371	5,911	5,289
Spain	6,613	8,104	15,714
Italy	2,615	17,585	14,817
Austria	450	976	1,800
Yugoslavia	10,803	828	16,368
Greece	2,227	4,302	6,314
Turkey	670	1,768	1,646
Netherlands Antilles	217	981	1,775
Portuguese East Africa	481	550	1,557
Egypt	112	1,172	6,292
Sudan	1,003	3,385	4,031
Lebanon	122	112	476
Israel	1,151	3,092	7,805
Saudi Arabia	31	2,343	179
Iraq	970	37,546	8,665
Iran	1,639	10,728	27,647
Burma	417	1,882	2,949
Thailand	415	2,975	2,774
Indonesia	3,691	1,746	11,661
China	3,753	23,521	21,139
Japan	2,833	29,137	30,264
Philippine Republic	1,603	1,147	4,207
USA	16,940	37,241	104,299
Cuba	935	1,767	3,886
Colombia	556	651	3,266
Venezuela	6,429	31,045	18,339
Ecuador	298	430	898
Peru	621	882	2,523
Chile	253	659	904
Brazil	1,611	6,506	7,180
Uruguay	481	631	3,418
Argentina	11,597	67,693	38,299
Other foreign countries	10,449	15,575	46,880
TOTAL	278,979	877,310	1,213,236

RFD COMPANY, LIMITED—Mr. H. F. Spencer has resigned from the board because of the pressure of other duties.

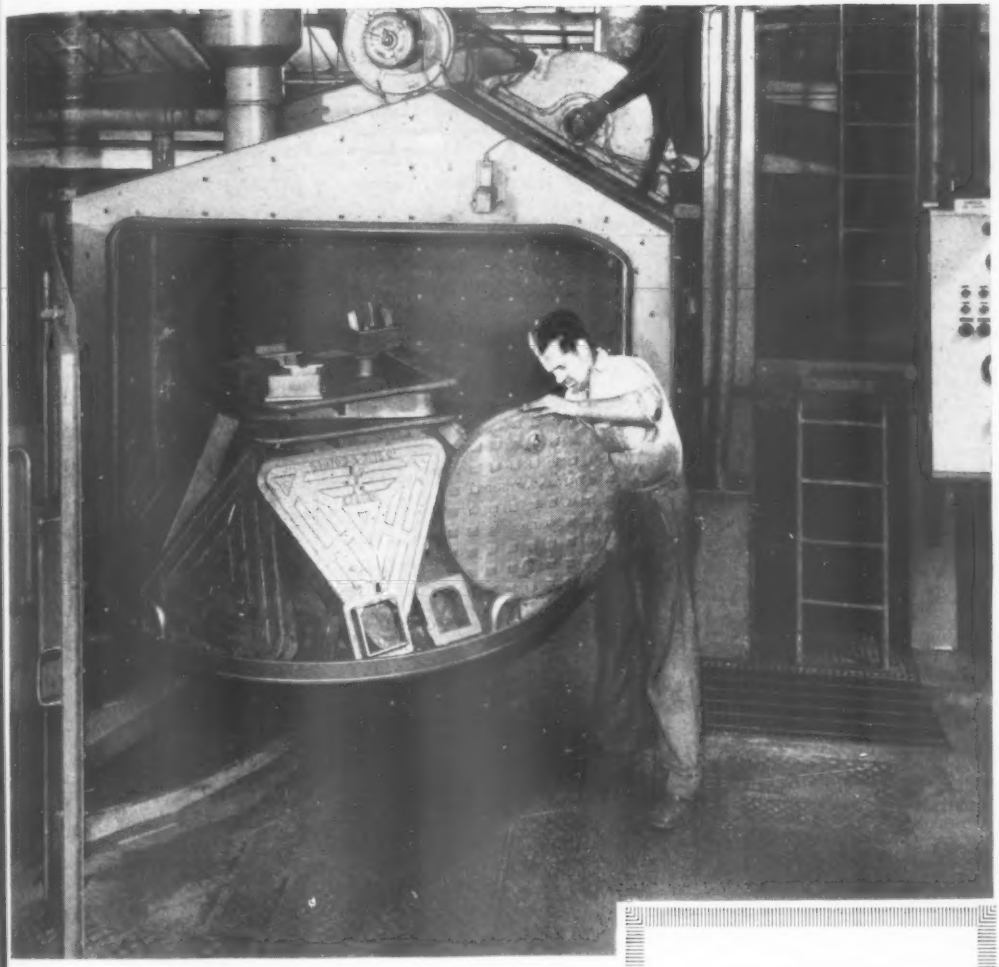
Total Imports of Iron and Steel

From	Month ended April 30.	Four months ended April 30.	
	1960.	1959.	1960.
	Tons.	Tons.	Tons.
Union of South Africa	1,989	7,978	14,967
Rhodesia and Nyasaland	649	1,514	2,569
Canada	3,893	3,402	11,125
Other Commonwealth countries and Eire	819	3,830	10,545
Soviet Union	677	5,189	13,548
Sweden	3,660	8,628	15,452
Norway	18,203	26,567	46,630
Poland	1,791	974	8,411
Western Germany	14,187	16,544	57,989
Netherlands	23,881	55,870	68,381
Belgium	14,003	8,985	35,233
Luxembourg	2,021	2,007	4,962
France	9,055	6,417	24,154
Italy	4,291	839	8,318
Austria	1,165	1,023	4,483
Japan	801	728	2,768
USA	26,136	8,705	54,158
Other foreign countries	792	3,723	8,729
TOTAL	123,013	162,923	392,412
Iron and steel scrap and waste, fit only for the recovery of metal	14,877	866	56,719

Exports of Iron and Steel, by Product

Product.	Month ended April 30.	Four months ended April 30.	
	1960.	1959.	1960.
	Tons.	Tons.	Tons.
Pig-iron	15,585	40,314	74,280
Ferro-columbium (niobium)	17	18	57
Ferro-tungsten	83	456	408
Other ferro-alloys	808	1,456	3,336
Ingots, blooms, billets, slabs, sheet bars (incl. tinplate bars), and similar primary forms	1,404	25,140	19,199
Pieces roughly shaped by forging	193	663	669
Iron bars, rods, angles, shapes, and sections	118	328	552
Steel bars, rods, angles, sections, and shapes	50,308	99,297	217,097
Iron plates and sheets	1	113	305
Universal plates	2,257	2,665	7,797
Steel plate, 3mm. and under 4.5mm. thickness	4,924	16,531	13,905
Ditto, 4.5mm. or more in thickness	25,929	50,316	118,706
Blacksheets and blackplate	25,350	85,604	108,248
Hoop and strip	8,317	24,213	33,837
Tinplate	51,899	155,677	199,484
Decorated tinplate	555	3,440	1,611
Galvanized sheets	9,835	31,111	28,084
Other (incl. tinned sheets, terneplate, and ternesheets)	2,497	5,692	11,345
Railway and tramway construction material	4,516	58,806	41,875
Wire rods of steel (incl. alloy steel)	4,705	13,450	21,313
Wire	10,332	32,300	42,967
Tubes, pipes, and fittings	59,346	229,720	268,163
TOTAL	278,979	877,310	1,213,236

EXPANSION OF BUSINESS has necessitated a major reconstruction programme for Dowty Seals, Limited, of Ashchurch, near Tewkesbury. Work has already commenced on a new large factory which is expected to be completed early in 1961.



Baker Perkins Foundry Machinery at work... *at Garton & King Ltd.*

In Exeter, Garton & King Ltd. use this Baker Perkins Swing Table Shot Blast Machine to treat a very wide range of pieces. This machine saves space—it occupies less room than free tunnel type units. It saves power—you don't need compressed air plant. And although it is based on the rotary table principle, it can handle larger and heavier pieces than conventional machines.

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Engineers

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HISTORICAL NOTE

"At the sign of the Golden Hammer".

The predecessors of Garton & King Ltd., were known in 1662, and they have had a foundry since about 1800. They now produce a wide range of municipal castings and gear wheels, besides general engineering castings in iron, gunmetal and aluminium for use at home and overseas. They still preserve their trade sign of "The Golden Hammer" which has been in use for over 200 years.

CLASSIFIED ADVERTISEMENTS

PREPAID RATES: Fifteen words for 7/6 (minimum charge) and 4d. per word thereafter. Box Numbers 2/ extra per insertion (including postage of replies). Situations wanted 2d. per word throughout.

Advertisements (accompanied by a remittance) and replies to Box Numbers should be addressed to the Advertisement Manager, Foundry Trade Journal, John Adam House 17/19, John Adam Street, Adelphi, London, W.C.2. If received by first post Monday advertisements can normally be accommodated in the following Thursday's issue.

SITUATIONS WANTED

WORKS MANAGER, 48, over 20 years' managerial experience in mechanised floor moulding, etc., fully conversant with all modern practice, seeks similar position. Excellent references. Small amount capital if necessary. Box WM680, FOUNDRY TRADE JOURNAL.

WORKS ENGINEER (40), A.M.I.PlantE., A.M.I.B.F., seeks new position. Good background and experience modern foundries, machine shops, installation, maintenance, development. Available July, 1960. Salary £1,500. Assistance with housing. Box WE688, FOUNDRY TRADE JOURNAL.

ENTHUSIASTIC YOUNG FOUNDRYMAN, highly qualified in foundry technology and metallurgy, seeks position with a well established foundry producing malleable or s.g. iron castings. Position envisaged, is one where a full and thorough knowledge of modern malleable founding can be used to its fullest extent, and where drive and initiative will be appreciated by remuneration. Box EY672, FOUNDRY TRADE JOURNAL.

FOUNDRY MANAGER (40), M.I.B.F., seeks position. Ten years' managerial experience. General jobbing and semi-mechanised production up to 15 tons. CO_2 process, technically trained, sound disciplinarian. Box FM674, FOUNDRY TRADE JOURNAL.

PRACTICAL FOUNDRYMAN, 39, C. & G., M.I.B.F., experienced grey iron, mechanite and non-ferrous production, mechanized and jobbing, seeks position Assistant Manager/Manager, medium foundry home or overseas. Fourteen years' supervisory and managerial experience reputable companies U.K., S.E. Asia. Box PF670, FOUNDRY TRADE JOURNAL.

SITUATIONS VACANT

METALLURGIST required for Roll Foundry in Midlands. Manufacturing Grain, Alloy Grain, Chill, Indefinite Chill and Steel Base Rolls. Box MR661, FOUNDRY TRADE JOURNAL.

METALLURGIST required to control melting and sand preparation in new Blackheart Malleable Foundry. Practical experience in the production of high grade Pearlitic and/or Ferritic Malleable irons by Duplexing Process would be an asset, but applications are also invited from plant Metallurgists with sound practical experience in metal melting and sand control. Assistance with housing accommodation can be provided in the New Town of Cwmbran situated in the pleasant county of Monmouthshire. Please apply, giving age and full details of qualifications and experience, to: GUEST, KEEN & NETTLEFOLDS (CWMBRAN), LTD., Cwmbran, Mon.

LOOSE PATTERN MOULDER required for Grey Iron Foundry, making chain, sprockets, up to 4 cwt. Piecework, but guaranteed rate for initial four weeks. Applications, giving age, details of experience and whether married, to: BAGSHAWE & CO., LTD., Dunstable Works, Dunstable.

SITUATIONS VACANT—*contd.*

A VACANCY exists for YOUNG TECHNICIAN in the Process Control and Development Section of an Investment Foundry. Previous experience in this field of metallurgical engineering is not essential. Apply, giving full details of education, previous experience, etc., to P. I. CASTINGS (ALTRINCHAM) LTD., Atlantic Street, Altrincham.

MIDLANDS TECHNICAL REPRESENTATIVE, preferably based Birmingham area, for the sale of iron and steel foundry Refractories, chiefly foundry ceramics and holloware. Practical modern foundry experience essential. Full relevant details to Box MT684, FOUNDRY TRADE JOURNAL.

G. PERRY & SONS have immediate vacancies for first class PATTERNMAKERS used to fine accurate work, to be employed on interesting new projects. Good wages, canteen facilities. G. PERRY & SONS, Hall Lane, Aylestone, Leicester.

FOREMAN MOULDER required for steel, iron and non-ferrous Foundry in Federation of Malaya. Must be conversant with all aspects of foundry practice. Applicants should preferably be single, under 30. Attractive salary with quarters and heavy furniture at nominal rental, local leave and home leave on full pay. Write Box Z.O. 981, DEACONS ADVERTISING, 36, Leadenhall Street, London, E.C.3.

EXECUTIVE SALES ENGINEER required by Britain's leading manufacturers of foundry plant, having proved experience of high level selling based on full knowledge of foundry trade, with first class contacts. Age about 35. Good salary and excellent prospects. Apply Box 714, DORLAND ADVERTISING LTD., 28, Haymarket, S.W.1.

SITUATIONS VACANT—*contd.*

FIRST HAND STEEL MELTER required for 2-ton Electric Arc Furnace, foundry situated in the South of England. Applicants should state full details of experience, age and salary required, to Box FN690, FOUNDRY TRADE JOURNAL.

FOUNDRY TECHNICIANS required by company of metallurgists and consultants in Yorkshire to join their foundry section. Candidates should have extensive metallurgical, technical and production experience in all branches of metal founding. The foundry section provides a comprehensive advisory service to the foundry industry covering the design of complete foundries and the modernisation and re-organisation of existing units; advisory work on foundry production methods and general metallurgical and engineering problems allied to metal casting. Applications, stating age, training and experience, and some indication of salary level to Box FT682, FOUNDRY TRADE JOURNAL.

DRAUGHTSMAN, experienced in foundry layout drawing, to assist in the design of complete new foundries and the modernisation of existing foundries. This is an interesting job for a man with a wide knowledge of modern foundry plant and casting production techniques. Write, stating age, training, experience and giving some indication of salary level, to Box DE692, FOUNDRY TRADE JOURNAL.

WANTED. Skilled ALUMINIUM & BRONZE MOULDER. Permanent position for man with ability. Wide range of bench and floor work. Modern foundry situated in Leicestershire. Good rates of pay or piece work. Housing assistance arranged for suitable applicant. Box WS665, FOUNDRY TRADE JOURNAL.

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FOUNDRY MANAGER (Central Scotland)

for a well established foundry company engaged on the production of high quality engineering castings for use in the automotive industry. The Foundry Manager, who will be responsible to the Managing Director, will have complete charge of the foundry employing some 160 men and including pattern shop and drawing office. He should have good knowledge and experience of modern methods including mechanised moulding techniques and pattern layout.
The preferred age is around 35 and the position, which is a permanent one, is pensionable. A salary of £1,500 to £2,000 is contemplated depending on experience and ability.

Brief written applications should be sent, in complete confidence, to
Mr. D. Young (FTJ 916)
at Associated Industrial Consultants Limited
BUSH HOUSE LONDON WC2

Associated Industrial Consultants

SITUATIONS VACANT—*contd.*

FOUNDRY MANAGER.—Applications are invited from experienced men for the position of Foundry Manager. Experience of Hand Moulding, Mechanical Systems for Heavy and Light Machine Moulding for batch production, Core Making, Pattern Making, Sand Control. Must have experience of Foundry Cost Systems and Profit Control. Man of strong personality between 35 and 45 years. Apply Box FM673, FOUNDRY TRADE JOURNAL.

FOUNDRY MANAGER required for modern North East mechanised iron foundry, previous experience in management essential. Permanent position for suitable applicant. Good pension scheme. Write Box FM683, FOUNDRY TRADE JOURNAL.

SALES OFFICE MANAGER.

AS a result of re-organising the Sales function in our Foundry Division, we invite applicants for the position of SALES OFFICE MANAGER, with direct responsibility to the Sales Director. Our Foundry Division is engaged in the manufacture of Quality Controlled Steel Castings and is one of the leaders in this field. Applicants should have a good general education and some experience of sales office administration and costing with sound knowledge of direct selling to the Engineering Industry. Some general production knowledge would be considered an advantage, as also would experience in the Foundry Industry. Preferred age between 28 and 35. A four-figure salary is offered together with progressive conditions of employment. Applications, giving a general outline of the candidate's personal history, experience and achievements, will be treated in strict confidence and should be addressed to the PERSONNEL DIRECTOR, K & L STEELFOUNDERS AND ENGINEERS LIMITED, Letchworth, Herts. *(One of the 600 Group of Companies.)*

Arising from their expansion and re-organisation plan
CATTON & CO. LTD., (Steelfounders) of LEEDS have vacancies to offer as follows:

METALLURGIST—for steel foundry technical control duties, together with development work in both the sand and metallurgical fields. Applicants should have experience in ferrous metallurgy and foundry experience would be an added advantage.

METHODS ENGINEER—for investigational and development work in the field of gating and feeding of steel castings. Steel foundry experience desirable but an enquiring mind, together with initiative and determination to logically pursue shop floor problems, is of great importance.

MOULDING SHOP FOREMAN—for the control of a jobbing moulding shop producing steel castings up to five tons finished weight. Moulding experience, together with the ability to organise and control a team of skilled moulders and closers, is essential.

FETTLING SHOP FOREMAN—for supervisory duties in modern dressing shops catering for castings ranging from 1 lb. to 5 tons in weight. Previous experience in the dressing of castings desirable, but applicants with other types of foundry experience would be considered.

All the appointments carry attractive salaries and non-contributory pension benefits and assistance with housing would be provided, if necessary.

Replies—which will be treated in the strictest confidence—to the TECHNICAL DIRECTOR, CATTON & CO. LTD., CHADWICK STREET, LEEDS, 10.

AGENTS

AGENTS with established connections in the Foundry Industry required to introduce comprehensive line of plant and equipment in (*a*) Midlands, (*b*) Southern Counties. Box AW672, FOUNDRY TRADE JOURNAL.

SALES AGENT, London Area, grey iron and malleable castings. Commission basis and part expenses. Box SA685, FOUNDRY TRADE JOURNAL.

FOUNDRIES FOR SALE

A FIRST CLASS Scottish Steel Foundry producing castings up to 10 tons weight each, requires a REPRESENTATIVE to cover the Midlands and North of England. Applicants would need to be resident in the area, and should give full particulars of age, education, experience and salary required, also present position and salary. Car provided, expenses paid, pension scheme. Box AF689, FOUNDRY TRADE JOURNAL.

FREEHOLD Non-ferrous Foundry for sale. Buildings 4,400 sq. ft. on 3rd acre. Turnover £40/£50,000 p.a. Full order book. Present working Directors willing remain in advisory capacity or otherwise. Suit engineers with Castings problem. £20,000 involved but no reasonable offer refused. Would dispose of Freehold. Area: 15 miles west London. Box FN677, FOUNDRY TRADE JOURNAL.

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ONE 6 cwt. capacity CORE SAND MIXER, complete with electrics suitable for 400/440 volts, 3 phase, 50 cycle supply. Box CA664, FOUNDRY TRADE JOURNAL.

JOLT SQUEEZE Moulding Machines in good condition. Suitable for use with (*a*) 24 × 20 × 6 box and (*b*) 17 × 14 × 4 box. Reply to Box JS668, FOUNDRY TRADE JOURNAL.

WANTED. Pattern Miller, 24 in.—30 in. Bandsaw, 18 in.—26 in. Sawbench, Dimension Sawbench, Spindle Moulder & Disc Sander about 30 in. Preferably Wadkin's. "LONG MEADOW," Manor Lane, Whatton, Notts.

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ONE Model L.F.C. Birlec Detroit Indirect-Arc Melting Furnace having approx. cold charge capacity of 350 lbs. for melting brasses, bronzes, gun metal, etc. Control panel, automatic rocking control gear, furnace shell complete with spare door bricks, six electrode tongs, ramming former and initial furnace lining—spare shell without lining. Having Axon Motor, 350 volts, 3 phase, 50 cycles, 32 r.p.m. Serial No. 2429, and Foster Transformer, Serial No. JA 574. KVA 153, 300/90 volts, 437/1,700 amps., 1 phase. Machine purchased and installed in March, 1954. Machine Serial No. B 542. Apply: LAYCOCK ENGINEERING LTD., Millhouses, Sheffield, 8.

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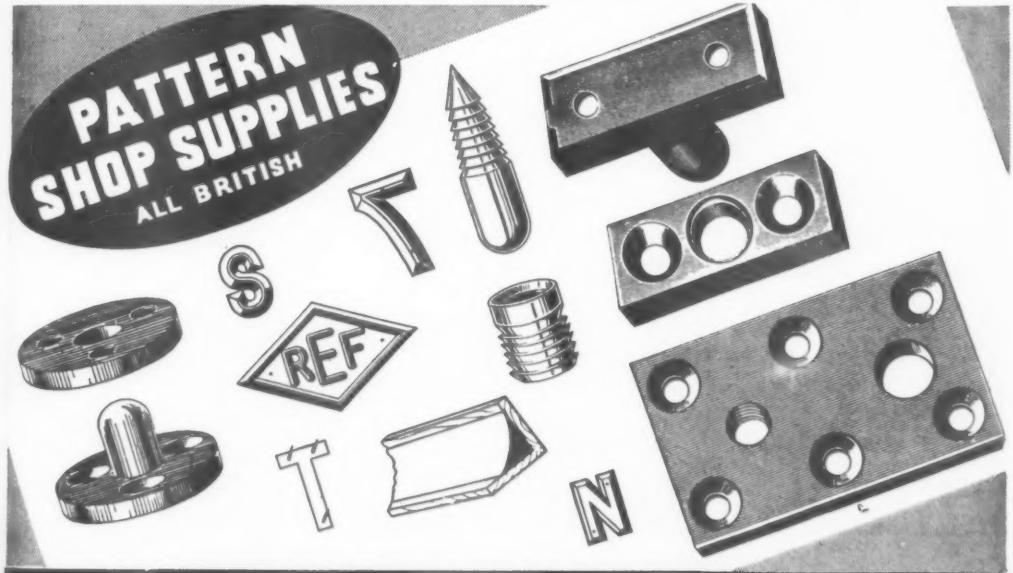

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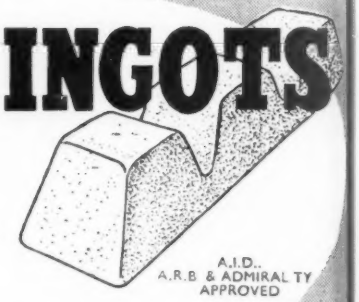

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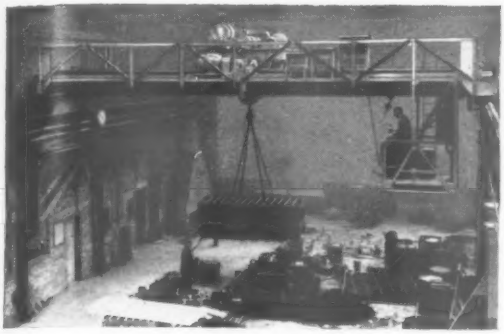

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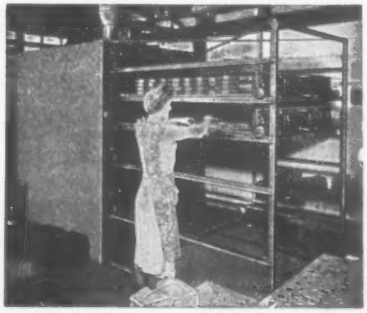

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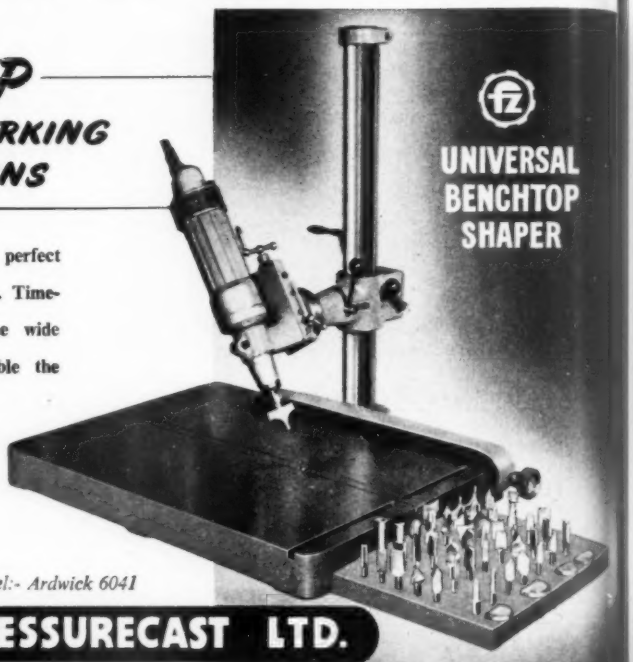

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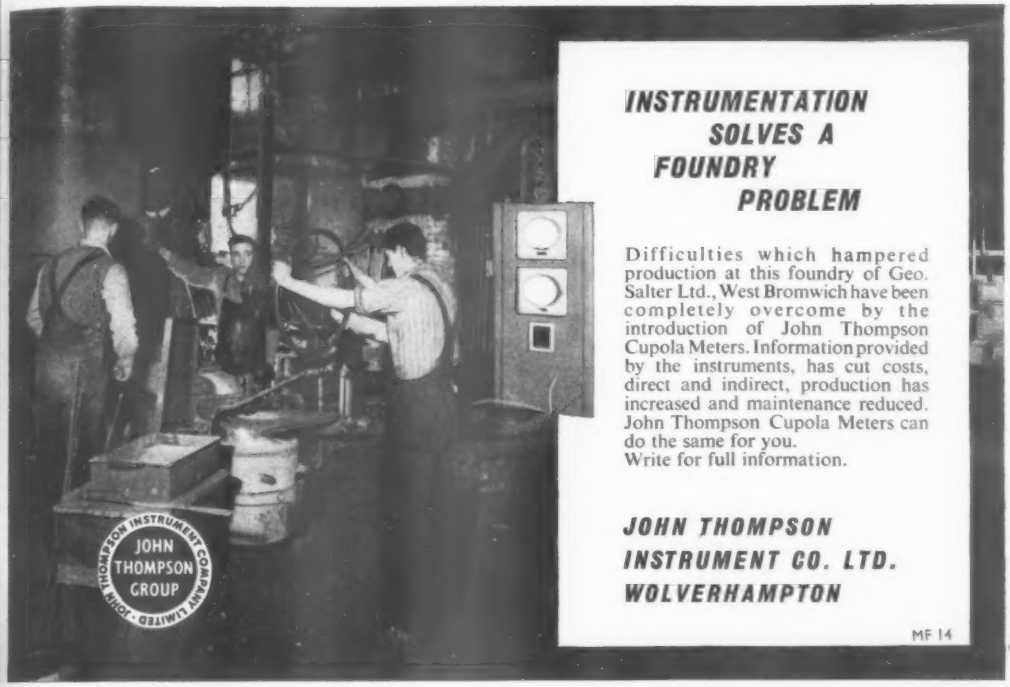

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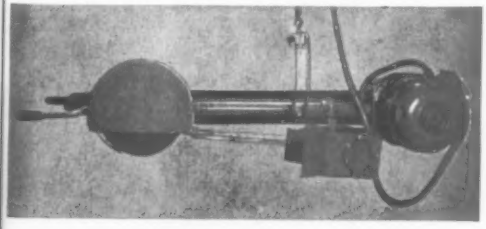

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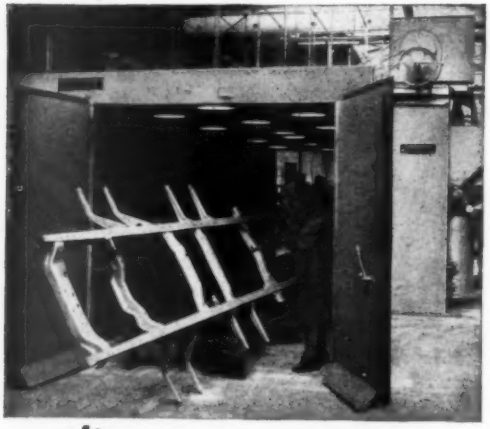

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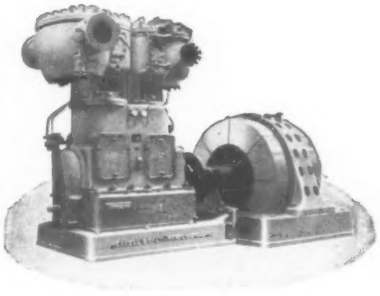

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Alcan (U.K.), Ltd.	—
Allan, John, & Co. (Glenpark), Ltd.	34
Allen, W. G., & Sons (Tipton), Ltd.	—
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Amafond	—
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Baker Perkins, Ltd.	41
Balbardie, Ltd.	—
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Ballinger, L. J. H., Ltd.	50
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Bilston Stove & Steel Truck Co., Ltd.	47
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Birlec, Ltd.	—
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Boydell, E., & Co., Ltd.	21
Bradbury, John, & Co. (Stockport), Ltd.	—
Bradley & Foster, Ltd.	33
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British Foundry Units, Ltd.	8
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Cox & Danks, Ltd.	24
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Dallow Lambert & Co., Ltd.	771
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Distington Engineering Co., Ltd.	13
Dowler, H. J., Engineers & Pattern Makers, Ltd.	—
Dowson & Mason, Ltd.	—
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Durrans, James, & Sons, Ltd.	14
Dustraction, Ltd.	—
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Sinex Eng'g. Co., Ltd.	18
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Staveley Iron & Chemical Co., Ltd.	28
Steels Engineering Installations	—
Stein, John G., & Co., Ltd.	—
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Sternol, Ltd.	—
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Swynnerton Red Moulding Sand	—
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Thomas, G. & R., Ltd.	—
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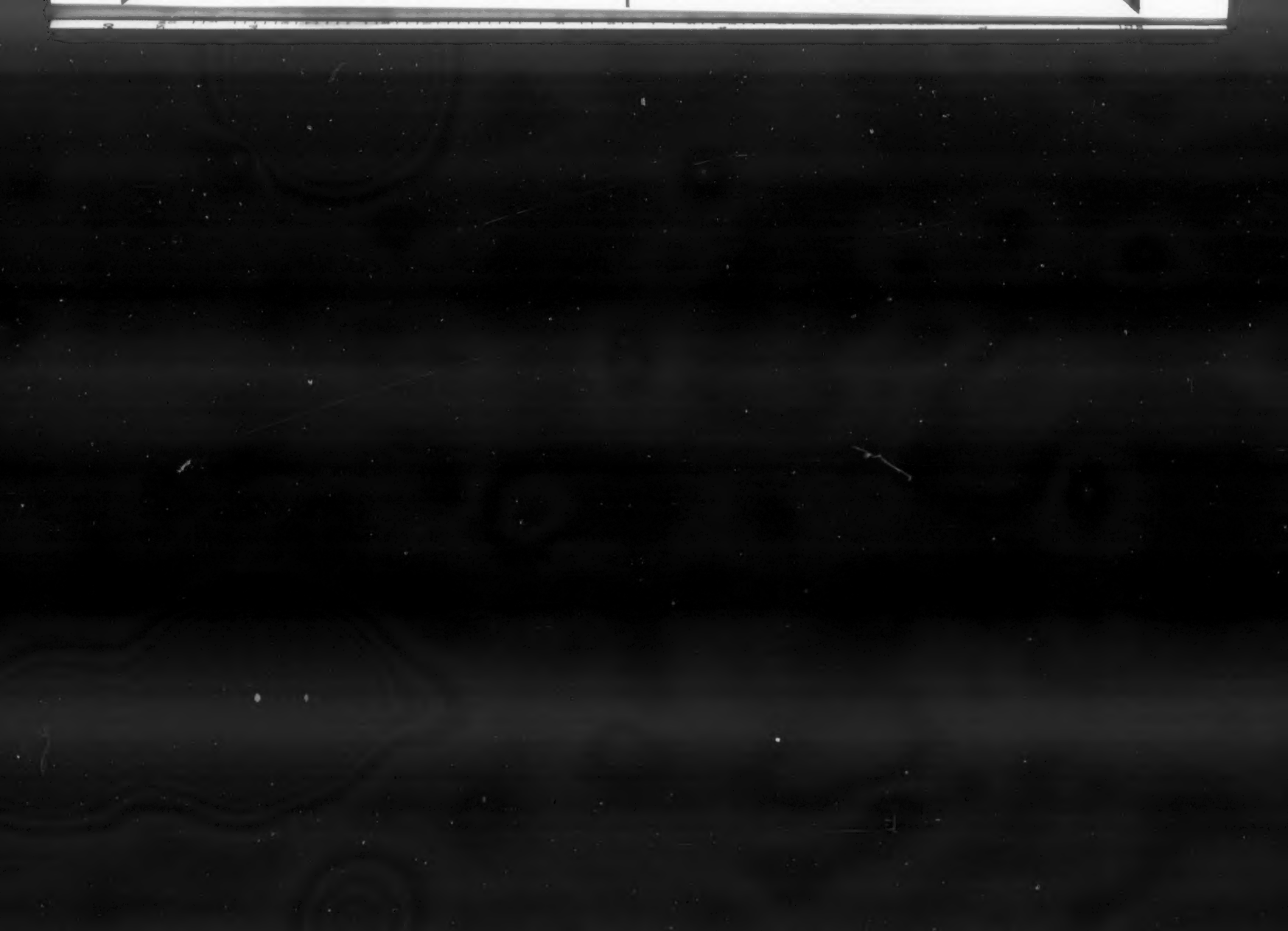

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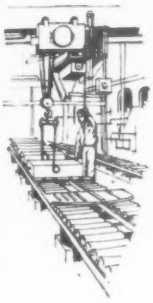

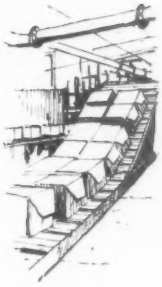

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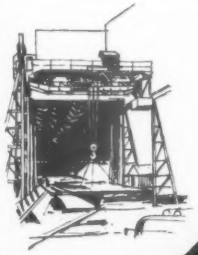

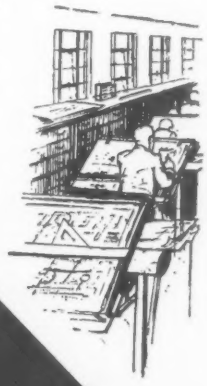

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